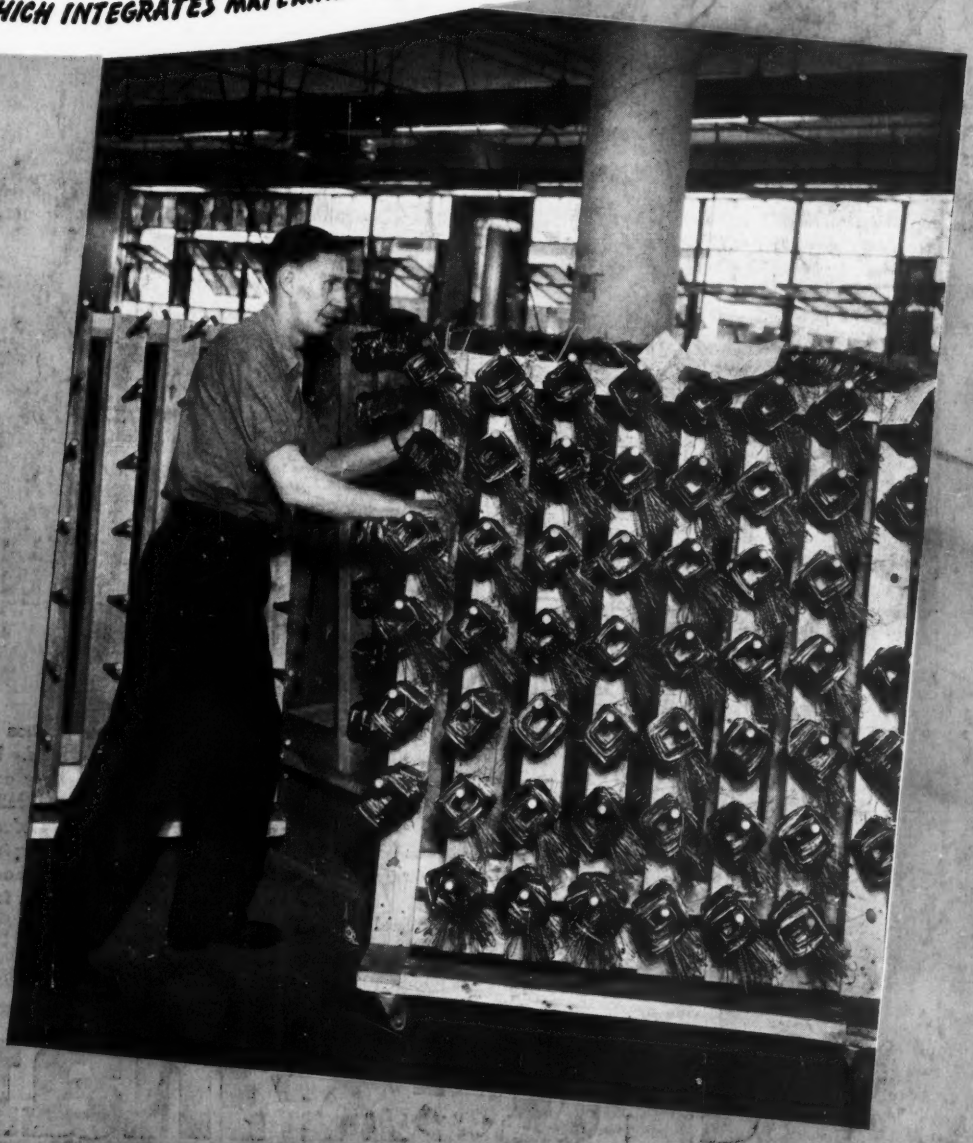
TECHNOLOGY DEPARTMENT

Flow

THE MAGAZINE WHICH INTEGRATES MATERIAL HANDLING EQUIPMENT INTO THE FLOW OF PRODUCTION

SEPTEMBER
1947



SEE SECTION "Packaging Mechanics," Page 30

8 Hours Continuous Operation on 1 Gallon of Gas . . . that's

LOW-COST HAULING

for the 19 out of 20 shop loads which are less than 1 ton

It's a cinch for us to prove that Truck-Man is easy on fuel and upkeep—and that's mighty important. But what's more vital to YOU, we can prove that Truck-Man actually costs less to operate than hand lift trucks . . . whether they're pulled, pushed or led about with the aid of power . . . Speedy, flexible and safe, Truck-Man's hydraulic lift and powerful engine spread handling labor over a vastly greater tonnage of material moved.

Simple controls are grouped in a 12" circle. Big dual pneumatics provide plenty of traction and riding comfort. The operator *rides with the load.* Instant low or high speeds are at his command. Easy and light maneuverability enable him to turn out a full day's productivity without fatigue or hazard. He's *glad* it's a Truck-Man. And you'll agree that fuel economy is only a drop in the bucket when the red line on your handling costs takes a dive! Check the many Truck-Man features now. Write for new Model D Folder.

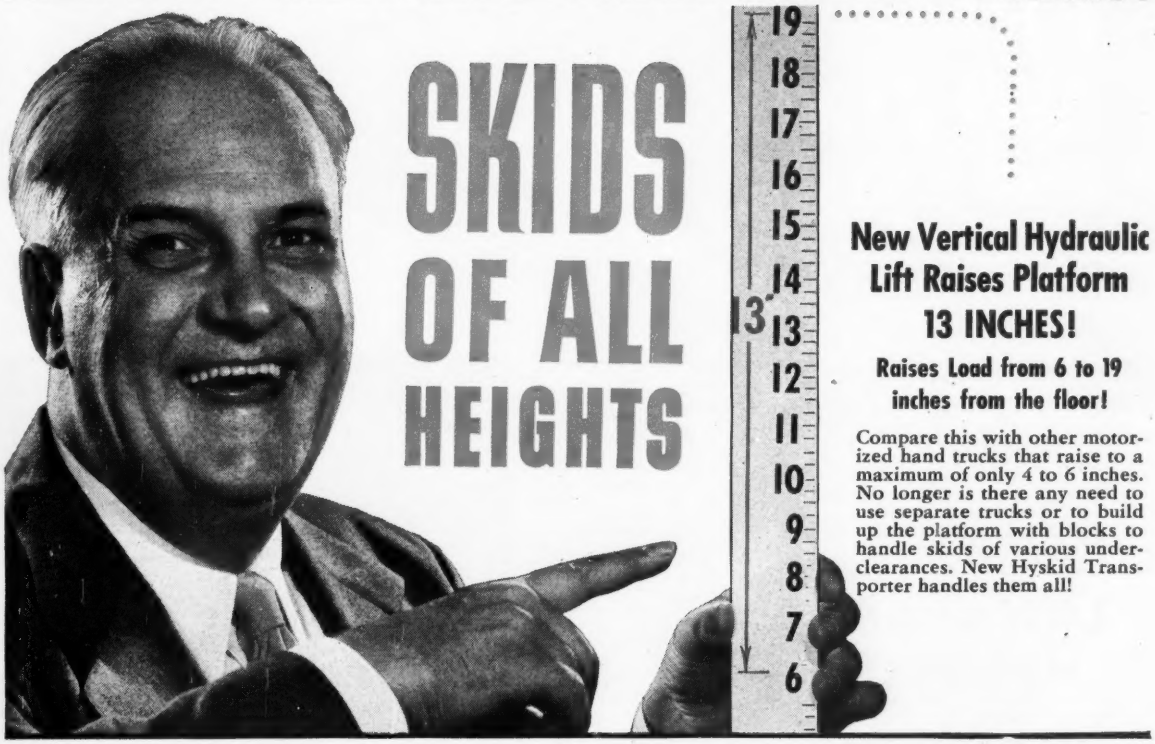
Over 70 Truck-Man distributors in principal centers provide standard service

Ask Any Operator About

truck-man

1418 West Ganson, **truck-man** INC. Jackson, Mich.

At Last! A Motorized Handtruck that Handles



New Vertical Hydraulic Lift Raises Platform 13 INCHES!

Raises Load from 6 to 19 inches from the floor!

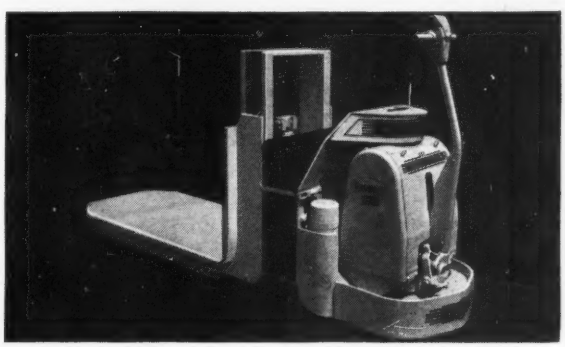
Compare this with other motorized hand trucks that raise to a maximum of only 4 to 6 inches. No longer is there any need to use separate trucks or to build up the platform with blocks to handle skids of various underclearances. New Hyskid Transporter handles them all!

Now ALL Industry Can Cut Handling Costs With Hyskid Transporter

Let us show you how this amazing new Transporter solves the problem of difficult ramps and underclearances—cuts material handling costs as much as 50%! Mail the coupon.

Hyskid Transporter will handle the many varying heights of skids used in industry today—and still leave ample clearance to negotiate ramps. This means miracle electric handling of materials with easy fingertip control is now available to all industry—replacing gruelling, back-breaking costly manual handling.

Equipped with the standard ATCO Electric Lift, Automatic's new Transporter will raise the full 13 inches in 12 seconds loaded, or 8 seconds empty. Capacities 4000 and 6000 pounds. Power consumption is so low, the same standard Transporter 11-plate battery is used.



Remember:
Only Automatic Makes the Transporter

Transporter
A PRODUCT OF AUTOMATIC
Lightens LIFE'S LOADS

MANUFACTURERS OF THE FAMOUS TRANSPORTERS, TRANSTACKERS AND SKYLIFT ELECTRIC TRUCKS

AUTOMATIC TRANSPORTATION COMPANY
DIV. OF THE YALE & TOWNE MFG. CO.
141 West 87th Street, Dept. P-7
Please send me complete information on your New HYSKID TRANSPORTER.
( ) Have an ATCO Material Handling Specialist make a free survey of my handling costs.

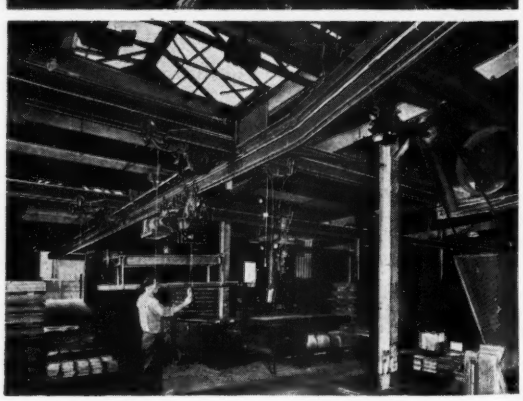
Company Name.....
By.....
Street Address.....
City.....*State*.....

FREE MOVING CRANES

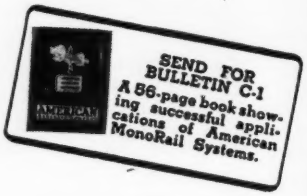
For

LOW COST HANDLING

American MonoRail Cranes supply overall coverage. Handling is not tied down to craneways since interlocking devices permit transfer in any direction. Free moving cranes serve every square foot of operating area. American MonoRail Cranes are available for any type of job. Low cost installation dovetails with low cost operation. They offer all the advantages of lightness, easy movement, strength, live-load capacity up to 5 tons.



Consultation with American MonoRail engineers will reveal why American MonoRail Equipment has been selected to serve the nation's largest industrial plants. We invite your inquiry — no obligation of course.



THE AMERICAN MONORAIL COMPANY

13129 ATHENS AVENUE — CLEVELAND 7, OHIO

Battery-driven

Industrial Trucks

Electric power has long since established top position for economy—and dependability—in the operation of industrial machines and processes. The fact that storage batteries make possible the use of low cost central station power on mobile equipment is one of the reasons why the ***battery-powered*** industrial truck consistently demonstrates an operating cost well under that of other types.

Materials flow easily, quickly, safely and at the lowest-cost per ton when handled with *battery-powered* self-loading industrial trucks.

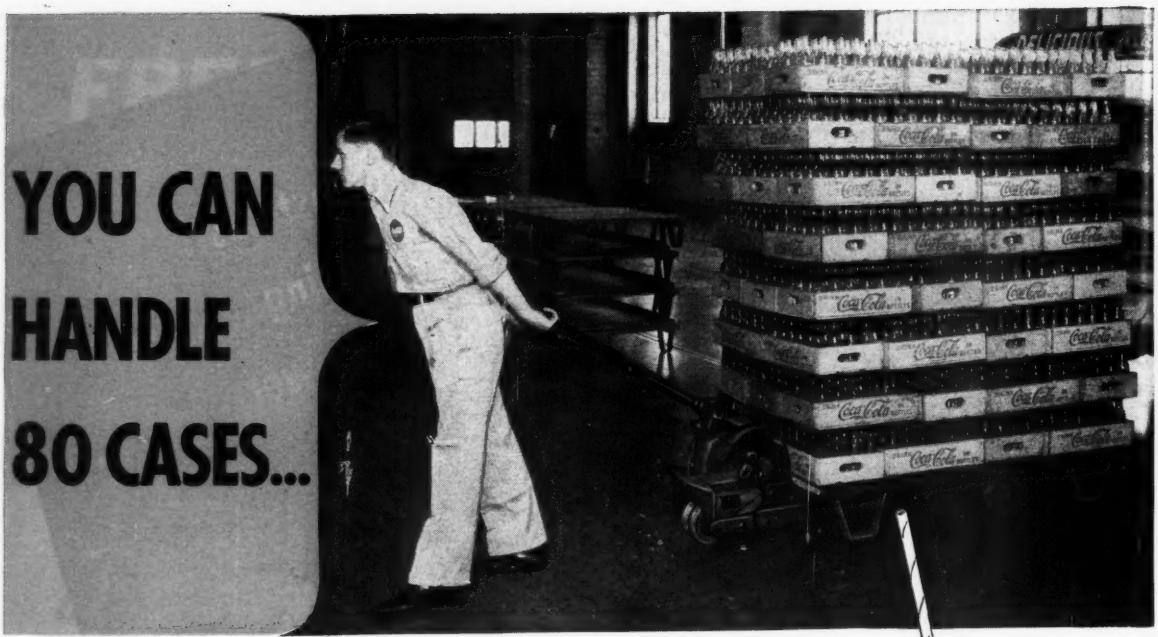
Send

FOR THESE BOOKLETS . . .

Two illustrated booklets—MATERIAL HANDLING HANDBOOK and UNIT LOADS—may help you detect and correct excessive cost wherever you move or store materials.

The Electric Industrial Truck Association

2928L Forty-first Avenue, Queens Plaza, Long Island City 1, N. Y.



for the Price of a Drink...

. . . WHEN YOU "MOVE IT WITH A YALE." This low-cost handling of beverages is just one example of how you get more output per manhour when Yale power replaces man power. This same thing is true whether you're handling paper, automobile parts, rugs or canned goods. One man, and a Yale Truck or Hoist can do the work of many "muscle men". And do it easier, faster, and at less cost. It just isn't economical these days to have expensive "muscle men" moving material around your plant when they could be doing more productive work. That's why it will pay you to get the facts on efficient material handling methods.

SEND TODAY FOR FREE, NEW 70-PAGE "HOW" BOOK

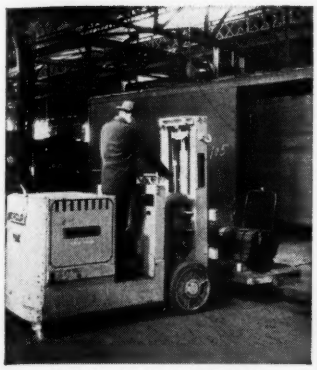
This material handling handbook, the first of its kind ever to be offered, shows you how to measure your present material handling costs and how to cut them. Send for your free copy today. Ask for the "How" book. Address: The Yale & Towne Manufacturing Co., 4548 Tacony St., Philadelphia 24, Pa.

MATERIAL HANDLING MACHINERY

CUTS PRODUCTION COSTS... SAVES TIME... SAVES EFFORT... PROMOTES SAFETY

YALE

KRON INDUSTRIAL SCALES · HOISTS—HAND AND ELECTRIC · TRUCKS—HAND LIFT AND ELECTRIC



MERCURY FORK TRUCK

DEPENDABLE POWER

EXIDE-IRONCLAD POWER AND BATTERY ELECTRIC TRUCKS

They're saving time and cutting costs on materials handling jobs like yours

More and more companies, with operating conditions that closely parallel yours, have discovered the way to faster, safer and more economical handling of materials. They have given the job of lifting, hauling and stacking to the efficient battery electric truck and equally efficient Exide-Ironclad Batteries.

The high electrical efficiency of Exide-Ironclad Batteries is due largely to the unique construction of the positive plates. Each of these plates consists of a series of slotted, hollow tubes which contain the active material. So fine are these slots that, while they permit easy access of the electrolyte, they prevent the active material from readily washing out. Not only does this add to life of plates . . . and battery . . . it also provides higher power ability and capacity, assuring dependable, day long performance with maximum safety and minimum maintenance.

Write us for a FREE copy of Exide-Ironclad Topics, which contains "Case Studies" of materials handling problems. It tells how to cut handling costs up to 50% . . . covers latest developments in handling materials from receiving to shipping.

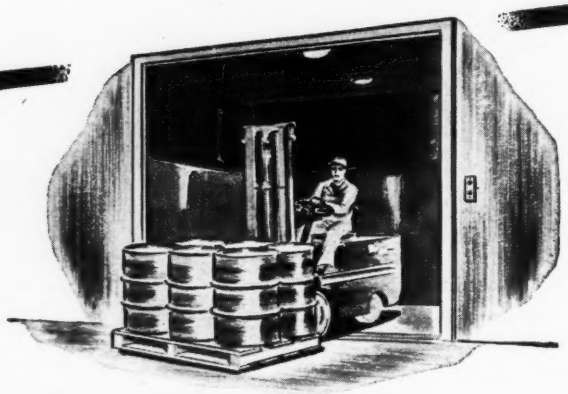
THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia 32
Exide Batteries of Canada, Limited, Toronto

MERCURY FORK TRUCK

No Stops for Re-handling

with an Otis

POW-R-TRUCK ELEVATOR



Loaded trucks can be driven right onto an Otis Pow-R-Truck Elevator — deliver loads direct to any desired level!

When you install an Otis Pow-R-Truck Elevator, time and manpower savings result—because a Pow-R-Truck Elevator *banishes re-handling of loads* bound for other floors.

Otis Pow-R-Truck Elevators are the world's only standardized line of elevators specifically engineered to carry fast, heavy industrial trucks.

The special features of Otis Pow-R-Truck Elevators include heavier platforms, stronger side braces, extra-rugged carframes and reinforced guide rails and supports. These elevators are available in all sizes, speeds and capacities.

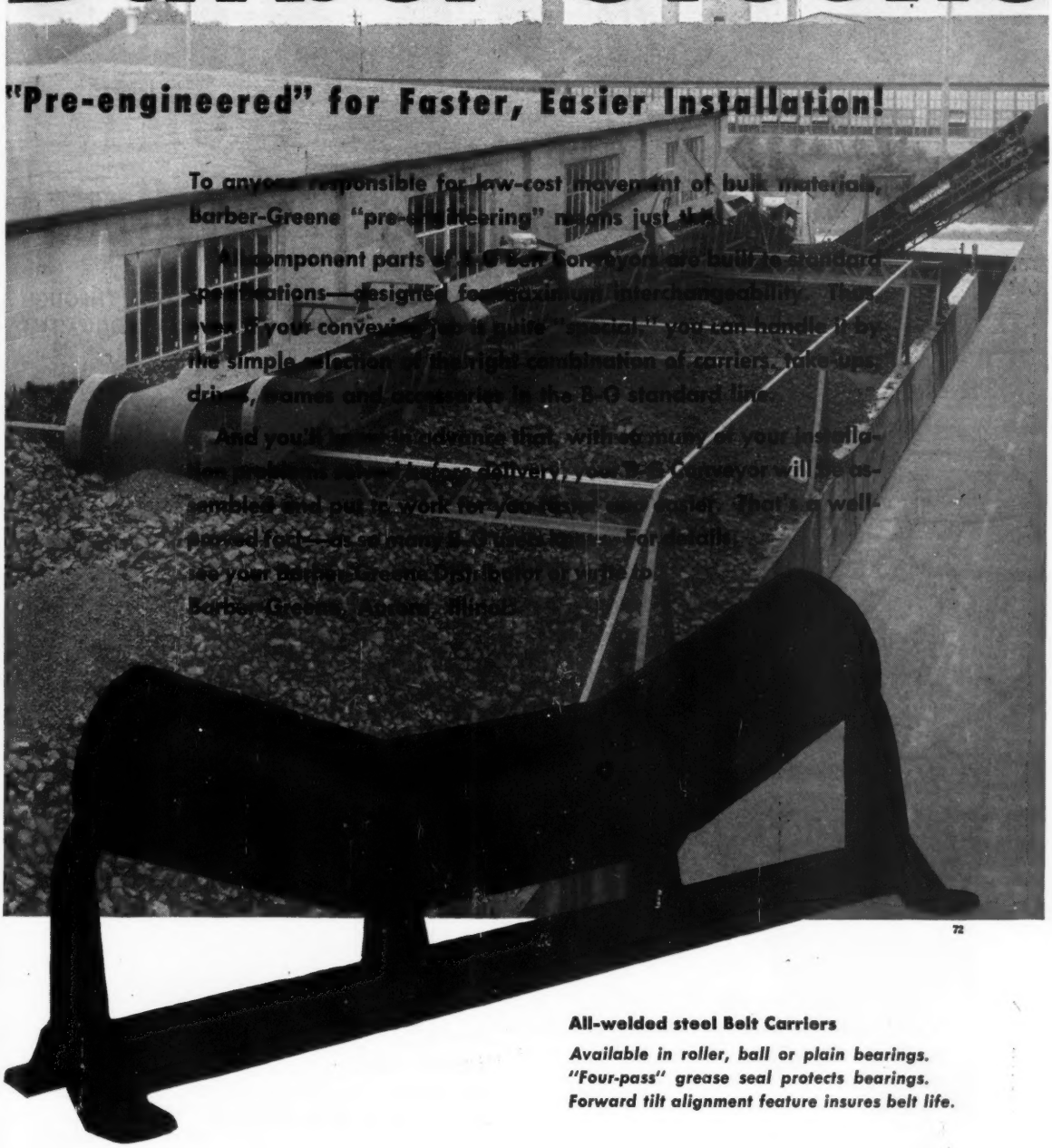
If you want Pow-R-Truck Elevators to eliminate re-handling in *your* plant, write for Bulletin 664 to Otis Elevator Company, 260 Eleventh Ave., New York 1, N. Y.

Otis **ELEVATOR COMPANY**

Offices in all principal cities

Barber-Greene

"Pre-engineered" for Faster, Easier Installation!



All-welded steel Belt Carriers

Available in roller, ball or plain bearings.
"Four-pass" grease seal protects bearings.
Forward tilt alignment feature insures belt life.

BARBER-GREENE COMPANY · AURORA, ILLINOIS

Constant Flow Equipment

BUCKET LOADERS • BELT CONVEYORS • PORTABLE BELT AND FLIGHT CONVEYORS • CAR UNLOADERS • SNOW LOADERS • COAL LOADERS

$1500

IN *Cash* PRIZES!

FOR THE BEST PAPER ON COST REDUCTION THROUGH THE USE OF MATERIAL HANDLING EQUIPMENT

in the

Flow CONTEST

Contest Closes December 15th, 1947

WHAT MAY BE ENTERED

Manuscripts may describe the cost factors entering into any type of material handling installation for either an entire plant or a single department.

WHO MAY MAKE ENTRIES

This competition is open to an employee or engineer of any company EXCEPT manufacturers or distributors of material handling equipment. Members of the FLOW staff cannot compete.

● Papers submitted (they may be of any length) will be judged on (1) the analysis of the cost factors entering into the installation described, with details of the methods used in measuring cost savings. (2) the evaluation of the efficiency of present methods over past methods, and (3) the technical accuracy and completeness of the entry. Pictures, charts and layout drawings are necessary to the cost analysis presentation.

RECEIVING ● PROCESSING ● FABRICATION
PACKAGING ● ASSEMBLY ● STOCK KEEPING

Where the entrant requests it, we will keep published manuscripts anonymous as to author or company.

AWARDS

First Prize	$500.00
Second Prize	$300.00
Third Prize	$200.00
Fourth, Fifth, Sixth, Seventh and Eighth Prizes	$100.00 EACH

IN EVENT OF TIES, DUPLICATE AWARDS WILL BE MADE

SEND FOR YOUR ENTRY BLANK

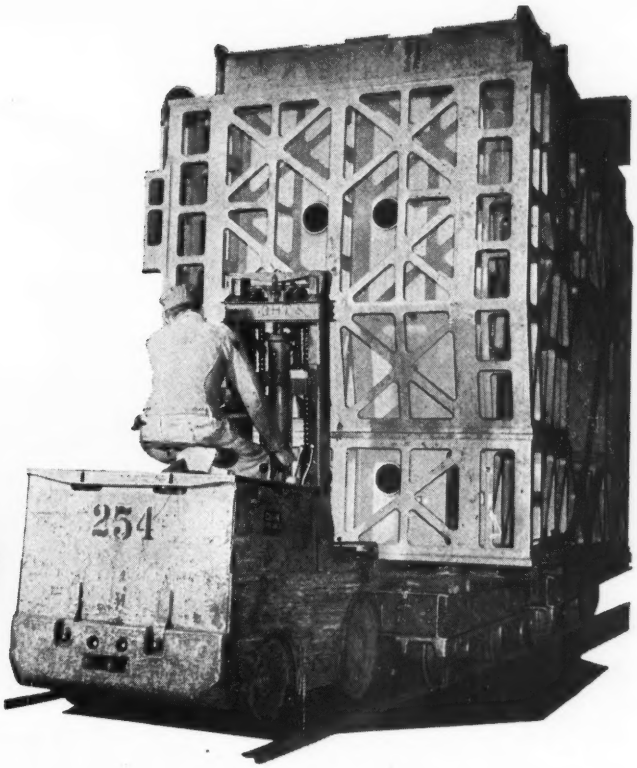
Now!

Write

CONTEST EDITOR
***Flow* MAGAZINE**
1240 ONTARIO STREET
CLEVELAND 13, OHIO

THEY GO ALMOST ANYWHERE

One of the unconventional but useful handling jobs often performed by battery industrial trucks is to push or pull heavy loads between craneways. Articles describing modern methods of material handling appear regularly in our STORAGE BATTERY POWER. Send for sample copy if you do not already receive it.



BECAUSE they are quiet and free from fumes, battery industrial trucks can be used without restriction in virtually any department of the plant. They can even be provided with spark-enclosed construction for operation in locations where fire and explosion hazards may exist.

In Industrial Trucks,* EDISON *Nickel-Iron-Alkaline Batteries Give You These Important Advantages

- ★ They are **durable mechanically;** grids, containers and other structural parts of the cells are of steel; the alkaline electrolyte is a preservative of steel.
- ★ They can be **charged rapidly;** gassing cannot dislodge the active materials.
- ★ They **withstand temperature extremes;** are free from freezing hazard; are easily ventilated for rapid cooling.
- ★ They are **foolproof electrically;** are not injured by short-circuiting, reverse charging or similar accidents.
- ★ They can **stand idle indefinitely** without injury. Merely discharge, short circuit, and store in a clean, dry place.
- ★ They are **simple and easy to maintain.**

They use low-cost electric power and they use it with maximum economy, because they start instantly, yet consume no power during stops. With electric-motor drive for both traction and lifting, they have a minimum of wearing parts; are easy to maintain; are rarely out of service for repairs.

Thus, they are inherently dependable and economical, and this is especially important where they are working twenty-four hours a day. Here they have the additional advantage of operating from one battery while another is on charge; except for the few minutes needed to exchange batteries, they need not stop for servicing of the power unit.

They are extra dependable and extra economical when EDISON Nickel-Iron-Alkaline Batteries are used. With steel cell construction, a solution which is a natural preservative of steel, and a fool-proof principle of operation, they are the longest-lived and most durable of all storage batteries. *Edison Storage Battery Division of Thomas A. Edison, Incorporated, West Orange, New Jersey. In Canada: International Equipment Company, Limited, Montreal and Toronto.*

EDISON

Nickel • Iron • Alkaline

STORAGE BATTERIES

STEEL
WHERE IT'S NEEDED

WOOD
WHERE IT'S NEEDED

FAIRBANKS STEEL-FRAMED TWO-WHEEL TRUCK is available in 20 sizes and types to meet specific job requirements

FAIRBANKS . . .
Steel-Framed Trucks

● Your truck costs go down and your men get more done in less time with Fairbanks Steel-Framed Hand and Platform Trucks.

The reason is simple. Fairbanks has effectively combined the structural advantages of steel and wood to provide hand and platform trucks that stand up under all kinds of punishment in service . . . that have shock-absorbing qualities which cushion heavy loads, dampen vibration, reduce operator fatigue.

Like all Fairbanks Trucks (over 90 basic designs with hundreds of variations) each of these Steel-Framed trucks is developed from on the job experience to put the maximum speed and ease into specific types of load-handling. For example, the "Commander" Steel-Framed Platform Truck shown above comes in 20 sizes from 24" x 42" to 36" x 72", with 3 platform heights (18", 14", 9½") and Tilt or Non-Tilt running gear.

Full information on any one or the complete line of Fairbanks Trucks may be had from any of the offices listed below.

American Industry Rolls on Fairbanks Trucks

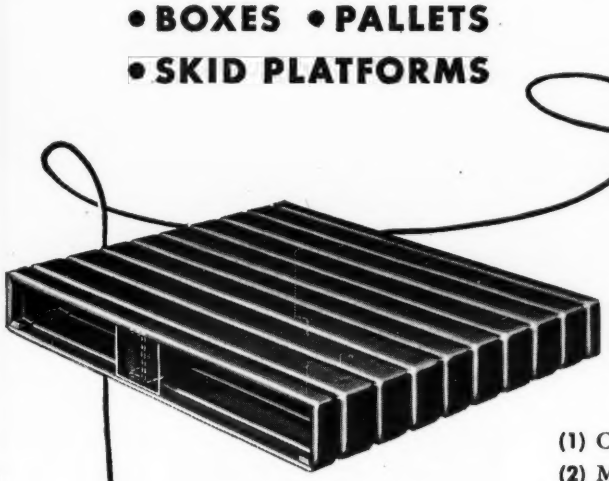
THE **fairbanks** COMPANY

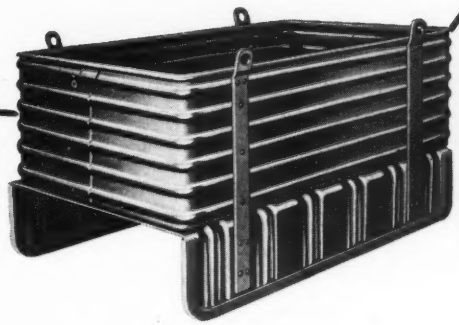
820 Atlantic Avenue, Boston 10, Mass. · 18 Ferry Street, Pittsburgh 22, Pa. · 2448 A. & M. Building, Houston 2, Texas · 202 Division Street, Rome, Ga.

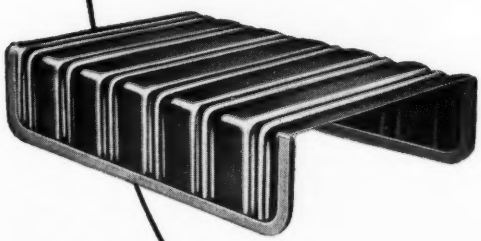
The busiest "line" in town...

UNION METAL *Engineered* Materials handling Equipment...

- **BOXES**
- **PALLETS**
- **SKID PLATFORMS**







Here are some of the things these *steel* units will do for you—

(1) Cut handling cost.
(2) Move materials quicker, safely.
(3) Keep floor space clear for production needs.
(4) Effectively use every cubic foot of storage area.
(5) Implement production line efficiency.

These are not idle claims. We've delivered on all 5 counts in hundreds of industrial plants throughout the country. And here are three important reasons why—

These units are designed and engineered to do the job intended.

They are rugged and long lasting.

They're produced in a plant that has specialized in steel fabrication for over 40 years.

Our engineers are always available to analyze and to plan with you. Why not take advantage of their experience. Write The Union Metal Manufacturing Company, Canton 5, Ohio.

UNION METAL
Materials Handling Equipment

GOULD AND PHILCO

JOIN HANDS TO BRING YOU

BETTER BATTERIES...
BETTER SERVICE...
BETTER DELIVERIES...

THE Storage Battery Division of Philco Corporation joined forces with the Gould Storage Battery Corporation on June 28, 1947.

Together, we can give you better batteries, faster deliveries, and better service than either of us could alone.

The consolidated organizations will operate under the name of Gould.

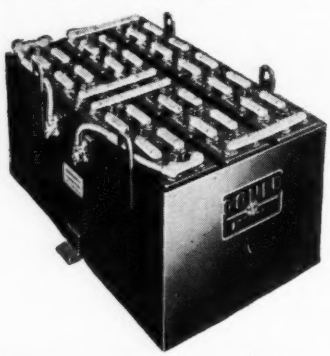
Both the Gould plant at Depew, New York, and the former Philco plant at Trenton, New Jersey, will continue to produce at full capacity, industrial storage batteries of the same high quality as heretofore.

The sales and service organizations of Philco and Gould will be blended together to give you most outstanding service.

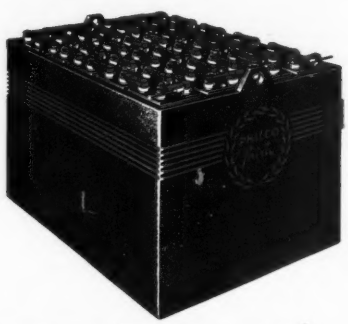
The facilities of the new, modern Gould Laboratory at Depew, New York, will bring to both Philco and Gould users all technological advances now in development.

We, the united personnel of Gould and Philco, can offer you better service and faster deliveries — now! We promise you even better batteries for tomorrow.

President
Gould Storage Battery Corporation



● *Batteries produced at the Gould plant, Depew, New York, will continue to be designated by the familiar Gould name and trade mark. For example, Gould types KRLD, KHD, KTD and KMD will continue to carry the same identity.*

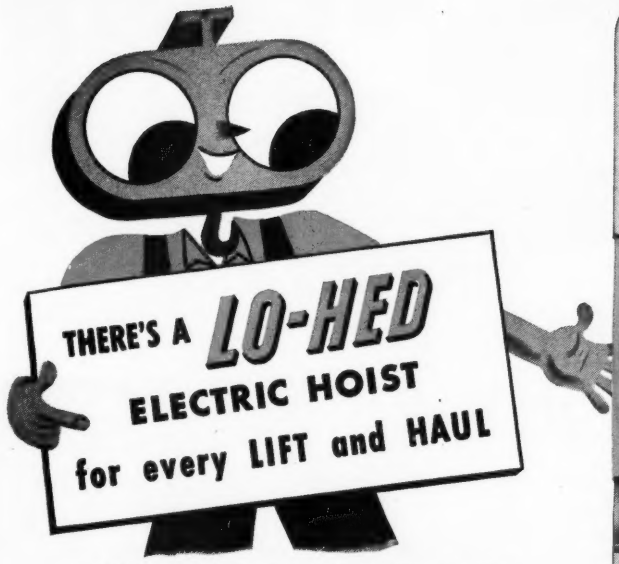


● *The name "Philco" on batteries produced at Trenton will gradually be replaced by the name "Gould". For example, Philco "Thirty" types AMH-P, XL-P and XVL-P will be called Gould "Thirty" AMH-P, XL-P and XVL-P.*

GOULD STORAGE BATTERY CORPORATION
TRENTON, NEW JERSEY — DEPEW, NEW YORK

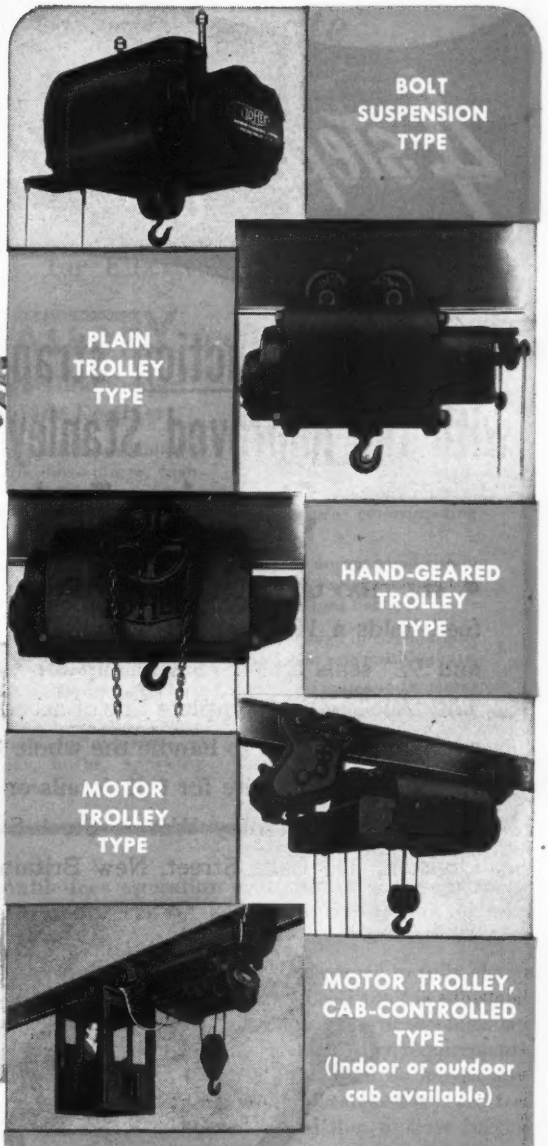
GOULD "Thirty" and KATHANODE **BATTERIES**

For Gould Service call Gould in the following cities: Boston, Mass. • Cincinnati, Ohio • Cleveland, Ohio Chicago, Ill. • Denver, Colo. • Depew, N.Y. • Detroit, Mich. • East Point, Ga. • Kansas City, Mo. • Los Angeles, Cal. • New York, N.Y. • Philadelphia, Pa. • Pittsburgh, Pa. • St. Louis, Mo. • St. Paul, Minn. • San Francisco, Cal. • Trenton, N.J. • Washington, D. C. • West Salem, Ore. • Kingston, Ont., Canada



CHECK YOUR JOB—PICK YOUR TYPE FROM THIS EASY-READING CHART

TYPES OF LO-HED HOISTS		Bolt Suspension	Plain Trolley	Hand-Geared Trolley	Motor Trolley	Motor Trolley Cab Controlled
HAUL (Distance)	No Haul	X				
	Very Short Haul		X			
	Short Haul			X		
	Long Haul				X	
	Very Long Haul					X
HAUL (Repetition)	Often Repeated			X	X	X
	Seldom Repeated		X	X	X	X
HAUL (Speed)	Important				X	X
	Secondary		X	X		
LOAD	Light	X	X	X	X	X
	Heavy	X	X	X	X	X
MANY BAYS TO BE SERVED					X	X



Lo-Hed Hoists operate on standard I-beam or can be adapted to operate on track of any make.

No matter what your lifting and hauling requirements are, you'll find it a very simple matter to select the means of suspension from among the five standard types of Lo-Hed Electric Hoists available. In addition to these types, Lo-Hed is also made in a wide variety of capacities (¼ to 12 tons), hoisting speeds and lifts. Consult your nearest Lo-Hed Hoist representative or get in touch with us at once.

OTHER Æ PRODUCTS
Æ-TAYLOR AND PERFECT SPREAD STOKERS, MARINE DECK AUXILIARIES, HELE-SHAW FLUID POWER, LO-HED CAR PULLERS

ANOTHER PRODUCT OF Æ

AMERICAN ENGINEERING COMPANY
2531 Aramingo Ave., Philadelphia 25, Pa.
Please send me without obligation your complete catalog of Lo-Hed Electric Hoists.

Name_____

Address_____ State_____

City_____

Title_____

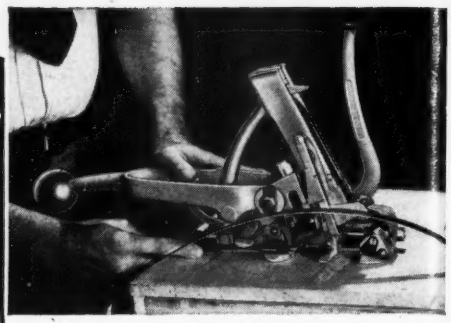
LO-HED *Electric* HOISTS

PRODUCT OF AMERICAN ENGINEERING COMPANY
PHILADELPHIA 25, PENNSYLVANIA

4 steps... 5 seconds!

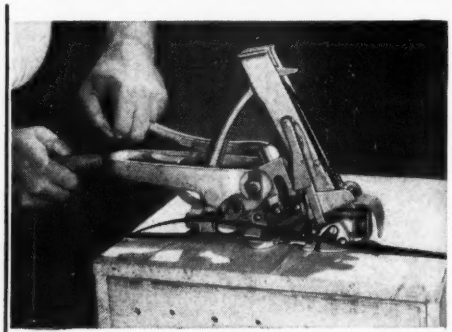
that's production strapping with the improved Stanley "ACE" Strapping Tool

• ALL THAT takes just 5 seconds. Positive spring feed holds a 100 seal clip in magazine for 3/8" and 1/2" seals and a 75 seal clip for 5/8" seals. The "Ace", with a complete line of accessories, is available in 3 sizes to handle the whole range of strapping jobs. Write for full details or demonstration. The Stanley Works, Steel Strapping Division, 203 Lake Street, New Britain, Conn.

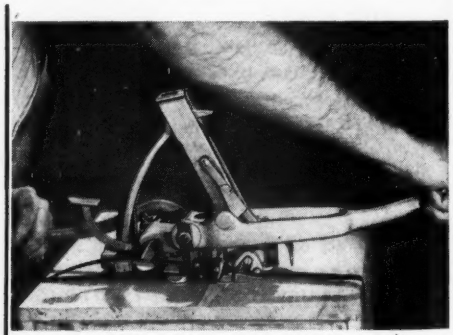


1 *Free end of strapping is slipped under straplock and against stop.*

2 *Loop of strapping is slipped under straplocks and between shear blades and pulled tight.*



3 *Strapping is tensioned by bringing tightening handle back to horizontal position.*



4 *Strapping is cut and seal crimped by moving sealing lever forward.*

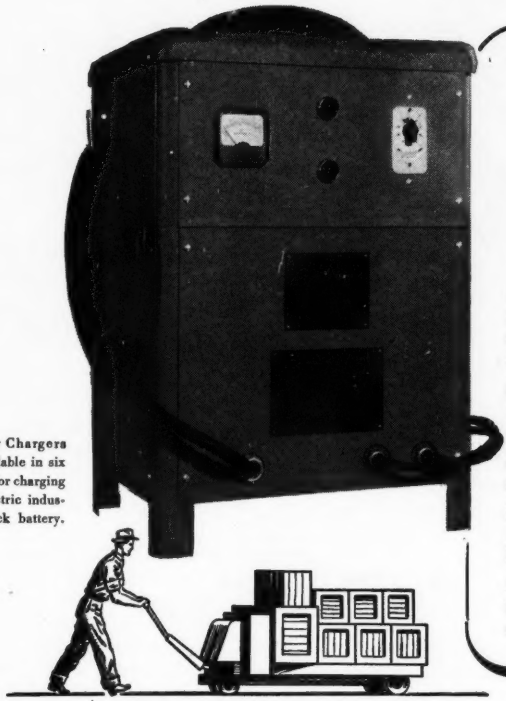
STANLEY

STEEL STRAPPING AND CAR BANDING SYSTEMS

Fully Automatic—Completely Safe

MALLORY Rectotruck CHARGERS

(TRADEMARK)



Mallory Chargers are available in six models for charging any electric industrial truck battery.

With an "Unbeatable Combination" for Electric Lift Trucks

P.R. MALLORY & CO. INC. MALLORY *and* Exide

Magnesium Copper Sulfide Rectifier

Most rugged, dependable rectifier for low-voltage, high-current applications.

Unaffected by high temperature operation under adverse atmospheric conditions.

Phenomenal ability to withstand abuse and accidental short circuits. Self-healing.

Stable, consistent charging without adjustment over long life.

Minimum maintenance—no brushes, bulbs, sparking contacts.

TVR Voltage Relay
(Reg. U.S. Pat. Off.)

Precision temperature-compensated voltage relay.

Exclusive, patented inverse temperature compensating feature.

Operates during rapid rise in charging voltage characteristic of a lead battery.

Reduces high initial charging rate to low safe finishing rate.

Starts synchronous timer which controls length of time at finishing rate.

Approved by leading lead battery manufacturers.

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VOLUME 2, No. 12

Flow

SEPTEMBER, 1947

COVER PHOTO—Hard-to-handle items—coils for motors—are being moved in quantity to sub-assembly by use of caster-mounted pegged truck. This method avoided loose handling in boxes and loss of production time because of reworking.—Courtesy, Jack & Heintz Precision Industries, Inc., Cleveland.

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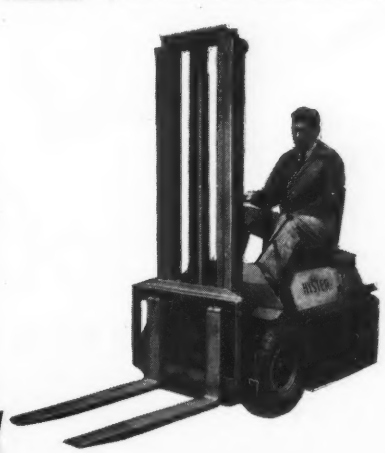

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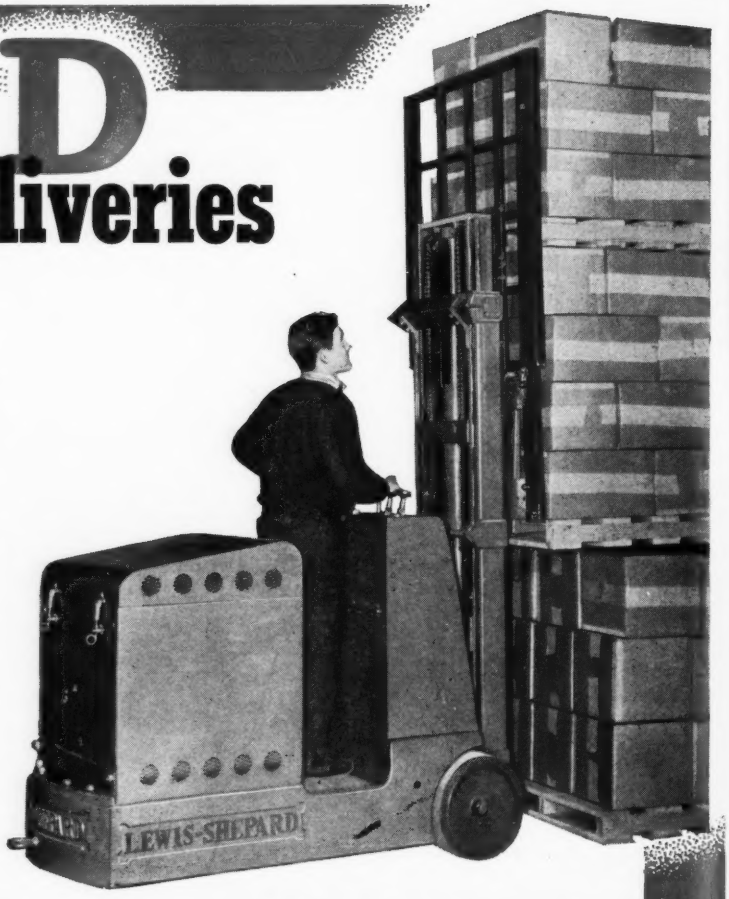

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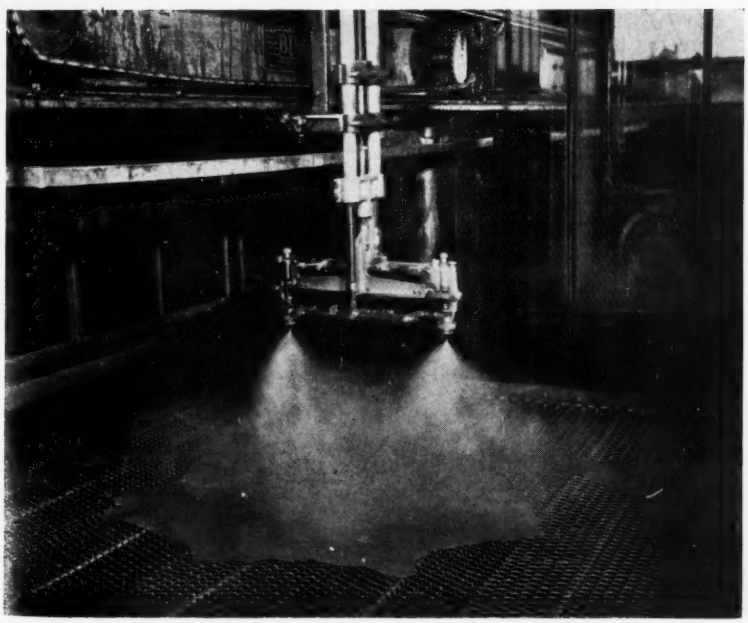
Seasoning by hand—the old way—slow and uneconomical, here compared with new method, in photos below.

Efficient Tannery Handling

Volume production with conveyor processing . . . good housekeeping . . . avoidance of rehandling . . . latest storage practices for supplies—the modern tannery has many problems in common with industry in general. Here is how a progressive plant is meeting its handling problems.

WIRE MESH CONVEYORS, POWER TRUCKS, COUNTERS PORTABLE ELEVATOR



THE application of mass handling techniques in the tanning industry has been retarded, to some extent, by the nature of the processing requirements themselves. The tanning process requires numerous individual handlings of each skin through a number of operations.

But excess handling of material in small batches adds to the price of the finished products, whether they be of leather, paper, lumber, stone, plastic or metal. Leading tanneries have paid increasing attention to this factor over the past 15 years. Pressure for greater and ever greater production during the war years tended to open the door to modern material handling ideas. As a result, machine production in increasing measure began supplanting hand operations, wherever this was possible. A few among many examples of this trend are the stationary soaking pits that gave way to the later paddle method, and the final trimming with hand-guided scissors as compared with the infinitely easier trimming by machine.

Advances like these were reflected in the increased application

The modern way with wire mesh conveyor, center, partly uncovered to show the mesh.

Now spray gun applies the finish as skins travel by at rate of 72 feet a minute, left.

of efficient handling methods. For the greater volume turned out adequate mass-handling facilities had to be provided, particularly in inter-departmental moves. In short, alert management realized that the ancient craft of tanning could also benefit from the economies of modern handling practices.

This trend was by no means confined to the larger tanneries alone. Those in the medium-sized group, for example, have applied portable conveyor handling to such by-products as fleshings and hair. Fleshings were at one time shoveled into bushel baskets and then hoisted by muscle power for loading into highway trucks. Now one man feeds the material (from a grade-level pit) to a cleated portable conveyor that loads the trucks. And he does the job with a fraction of the effort and in a fraction of the time required formerly. Once the value of such equipment was discovered in handling by-products, it was also soon found that the same conveyor could do an economical job in unloading raw material from freight cars. Bridging a gap between tracks and buildings, the conveyors were set up to transfer bundled hides from the car direct to the storage department (through a window or wall opening). This avoided literally miles of walking (and hours of time) in unloading each car.

Leather Processing Conveyor

Among the larger progressive tanneries there is The Ohio Leather Company, Girard, Ohio, whose management has for years pursued a vigorous policy of reducing the ultimate production cost through application of modern handling practices. This company produces calf and kip leather used for shoe uppers, pocket books and hand bags. ("Kip" refers to a skin from a calf at the heifer stage.) A daily production between 6,000 and 7,000 skins makes Ohio Leather one of the largest calf and kip tanneries in the world.

Of particular interest is the use of a wire mesh conveyor in the finishing operation (top spray coating) of skins. In years gone by, this operation was performed entirely by hand (and still is in many other tanneries). Operators laid out the individual skins on tables, applied the finish manually, and then disposed of the product by hanging it up on racks. One of the photos pictures this old-time method in comparison with the present-day conveyor operation used by The Ohio Leather Company.

The loads of skins are brought to the finishing room from the adjoining seasoning department on cas-

Powered truck moving heavy load of skins from shaving department to color room, left. No effort. Above: Company provided fleet of powered hand trucks for moving all leather-in-process, as shown.

tered horses, which are spotted at the feed end of the line. The horse and the conveyor are both of waist height. The operator takes hold of a skin and merely slides it onto the moving wire mesh carrying surface. The skins are placed on the line in rapid succession with this sliding motion, easily enabling the operator to keep the conveyor surface solidly covered.

Eight feet beyond the feed end is the spray booth, enclosed by glass partitions on four sides. In the booth, a dual spray gun travels laterally back and forth on an overhead rail, discharging a spray at each pass over the line. The movement of the gun is timed with the rate of travel of the wire mesh belt, and every passing skin is thoroughly covered. The wire mesh belt is excellently suited to this processing method. Excess amounts of the downward shooting spray pass through the mesh to the enclosed conveyor housing below, where drip pans are set up. An exhaust fan draws the mist through a vent in the side of the building.

Immediately beyond the spray booth, another four-sided glass housing forms the drying chamber. The heat is supplied by overhead steam coils, above which two blower fans circulate the heat downward over the traveling skins. At the discharge end, six feet ahead of the drying booth, the sprayed and dried skins are horsed up as fast as they arrive (also with a simple sliding motion), and are now ready for movement to the glazing

Mechanically Speaking

The over-all length of the conveyor line is 45 feet, and the width of the wire mesh belting (mounted on pintle chains) is 64 inches. The line normally travels at the rate of 72 feet a minute and is driven by a two h.p. motor. The conveyor is in continuous daily use as long as the tannery is in operation. The glass partitions around the spray booth prevent any mist of the seasoning liquid from entering the room, and the exhaust fan in the housing instantly draws any excess into the outside atmosphere, thus avoiding the possibility of a health hazard.

department located in the same room.

It will have been noted that only two operators, one at each end of the line, handle the large volume of material, and that the only effort required is a practically sliding motion. If the same operation (on this volume) were still performed by the old manual method, possibly as much as a 10 times greater floor area would be required than is now taken up by the conveyor. Part of this area would be required for the stationary tables, another for the drying racks, and a third for the numerous horses that would be necessary to supply work.

The straight-line conveyor method, on the other hand, makes it possible to concentrate the operation in minimum space. The conveyor also eliminates cluttered floor areas that would be caused by waiting work. The streamlined method also avoids extra traffic and makes possible a high-production job that is conspicuous for its orderliness and cleanliness.

Other Samples of Modern Practices

The use of this efficient processing conveyor is typical of the handling methods employed in other departments of the sizable plant. Supplies afford a good example. The Ohio Leather Company uses many types of finishes, lacquers, solvents and oils which come in 55-gallon drums. These containers used to be stored, single deck, on the floor, which required an exceptionally large amount of square footage for the hundreds of containers on hand.

In hide cellar: hours of production time and rehandling are saved by use of these counters.

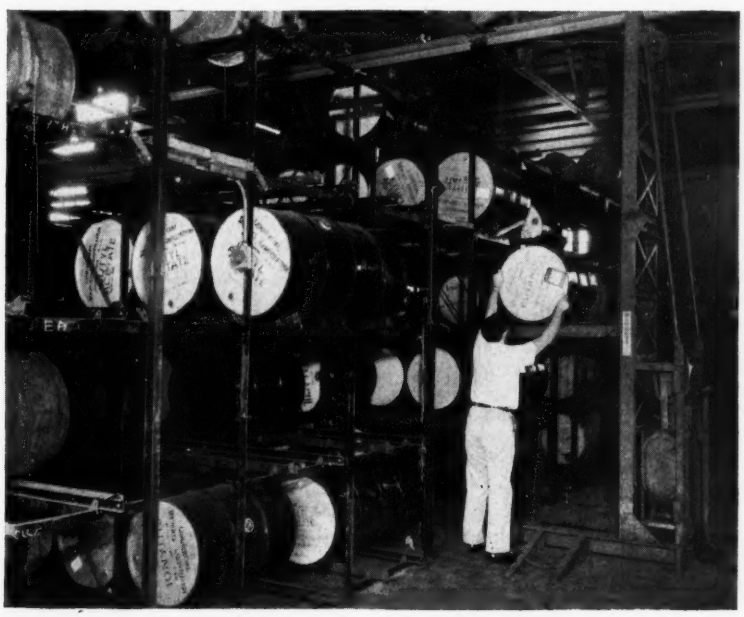
Vertical storage was the answer. An angle iron rack, five layers high, was provided in conjunction with an electric portable elevator. The rack consists of five connected sections, each with a capacity for 70 barrels. For purposes of convenience, access aisles are between each section on the floor level (about 24 inches wide), and catwalks at the level of the fourth layer.

As the drums arrive by highway truck or freight car, they are transferred via the electric portable conveyor to the proper location in the rack. Any drum needed is likewise quickly removed from storage. From the elevator platform it is usually transferred to the platform of a powered truck for delivery to the point of use.

This method has given the company a systematic storage system that offers a number of advantages. The time-consuming inconvenience of searching for a particular drum among many lying on the floor is a thing of the past. Storage is orderly, because each type of product is kept within its own rack section. The saving of square footage is important. Fifty feet long and 15 feet deep, the rack occupies 750 square feet in the storeroom. Since it is five layers high, it would require approximately five times this amount of floor area (3750 square feet) to store the number of barrels equalling the rack's capacity.

Similar types of barrel racks are being installed in several processing departments, where it is necessary to have a fairly large number of containers on hand. In one instance, almost as much space was used for on-the-floor barrel storage as was taken up by the processing equipment. Wherever the racks are going up the barrels are going up too, making extra space available for manufacturing purposes. As in the storeroom, the results are better stock control, better accessibility, good housekeeping, and improved safety.

Thousands of feet of floor area are saved by use of vertical storage and portable elevator.



Mechanical Counters Save Time, Handling

An efficient innovation in method can be observed in the hide cellar, where the packs of skins are prepared for beam house processing. A pack contains several hundred

(Turn to page 65)

LOCOMOTIVE CRANE, PUSH BAR CONVEYOR AND CRANES

HIGH-VOLUME SCRAP METAL LOADING

By coordinating a locomotive crane, an automatic baler, and a push-bar conveyor, this company has engineered an exceptionally efficient operation: (1) Unloading, baling and loading up to nine tons an hour; (2) elimination of all manual handling; (3) creation of a direct flow of material from one car to another, thus providing extra storage space; (4) use of only three men in the entire operation.

Clam bucket transferring scrap from gondola car to baler for loading in second car.

Push-bar conveyor carrying baled scrap to empty car, which is loaded in short time.

THE great demand for scrap metal today calls for methods that can reduce handling time and effort to a minimum by the scrap dealer. One large Cleveland firm, The M. Cohen & Son Co., makes use of such devices as locomotive cranes, overhead cranes, conveyors and other equipment that result in efficient handling. This article deals with one phase of this operation; the handling of No. One, "new clips," (scrap from machining operations) and No. Two, old sheet (any material that has been used).

Cars Spotted by Locomotive Crane

Gondola cars loaded with loose scrap metal are spotted by one of four locomotive cranes on the west rail spur. Empty cars to be loaded with the same scrap in baled form are spotted on the parallel east track, 40 feet away. The automatic baler is located between the two tracks. Usually the crane operates from two full cars, one in front and one in back. Its 360-degree swing permits operation in a wide area. The crane has a 50-foot boom and a 1½-yard clam bucket that has an extra large opening for handling old sheet stock. Scrap from the gondola car is lifted by the clam bucket, deposited in the baling hopper and then compressed into a convenient bale in a matter of two or three minutes. Incidentally, the scrap bundles are made into exact size to fit the requirements of steel mill charging furnaces. They weigh from 500 to 1200 pounds. New clips usually weigh from 800 to 1200 pounds per bundle, and the old sheet from 500 to 800 pounds per bundle, depending on the type of material.

The hopper lifts the metal and deposits it in the compression pit. One operator controls the compression machine and another one is stationed here as a signalman. The only other man in the process is the crane operator. The scrap material is compressed by the action of three rams that are operated by hydraulic pressure. Ram No. One collects the material in the compression pit, No. Two is a secondary ram and No. Three is the high-pressure compressor. This one comes from 30 feet in the ground and applies 1800 pounds of pressure per square inch to the bundle. It also raises the bundles to ground level for pick up by the push-bar conveyor, which is inclined to deliver the bales to the car spotted on the east track. Thus the material flows from the full car to the baler, and the bales are then loaded directly into the outbound gondola via the conveyor.

Two sets of bars on the conveyor pick up the scrap bundles. The sets of bars are spaced some 15 feet apart. A space of three feet is maintained between each bar of the set. The reason for this is to provide positive pick up of the bales in case the first bar should slip the load. The bales are carried up the 15-foot height of the inclined conveyor and deposited into a two-foot long chute. The top of the chute is approximately six feet above the top of the gondola. From this point the compact bundles drop into the car. Usually one third of a 50-ton gondola car can be filled without moving. When a car is to be moved, one man (the signalman) shifts it with a car puller. The slight grade of the track provides just enough pitch to roll a car. Once positioned, cars are blocked with wood chocks.

Four auxiliary scrap piles are located within the 360-degree swing of the locomotive crane. These piles may contain approximately 5,000 tons of material and are used when carload lots are not on track. By use of these auxiliary piles, crane-inoperative time has been held to a minimum.

Thus a heavy tonnage of scrap metal, including awkward-to-handle sheet stock, is unloaded, baled and loaded in minimum time through a well engineered coordination of the three pieces of equipment involved. While the loading time per car is largely dependent on the type of scrap, a medium-sized carlot of uniform metal has been completed in as little as four hours.

Strapped Seamless Bags

PART of a palletized l.c.l. freight shipment in the Northwest is shown above being loaded onto a semi-trailer for transfer from the Bemis

Brothers Bag Company plant in Minneapolis to the Great Northern freight terminal. Shipments of nine unit loads each were made to Minot and Williston, N. Dak. The trailer above is being loaded by a motorized hand truck, which was also used in transferring the pallet loads to freight cars, and in unloading freight cars and delivering the shipments at their destinations. Each unit load—including 18 bales, pallet and steel strapping — weighed 1950 pounds.

Light Order Filling Truck

THIS light-weight truck was developed for the order filling of greeting cards in small quantities. The four-castored truck is of tubular steel construction, with two swivel castors for easy maneuvering. It weighs only 35 pounds and is therefore a handy unit for use by women stock selectors. The three shelves slope toward the order filler, which makes for convenience in disposing of the stock selected from the bins into the cartons. Each shelf, 24 inches long, accommodates three cartons nine inches wide side by side. The space between shelves is 9½ inches. The over-all length of the truck is 27 inches, the width, 21½ inches. Mounted on its left side is an arm, adjustable vertically, for attach-

ment of the order filling easel which is adjustable at an angle.—Courtesy, American Greeting Publishers, Inc., Cleveland.

Sugar Cane Grapple

THE USE of modern grapples with small mobile cranes is helping sugar cane growers do a better job. Shown here is a two-line sugar cane grapple, an improved design recently introduced, being used on a planta-

tion to pick up cane from the windrows and thus speed the loading operation. Cane growers have recognized the need for "mechanical hands" of this kind for some time. In recent years the experience of the plantation men has been combined with the engineering facilities of bucket manufacturers. The result is that modern grapples are affording a more efficient, economical and safer operation.—Courtesy, Blaw-Knox Company.

Moving Materials in a Railroad Supply Depot

Portable elevator like this has eliminated much rehandling of parts to and from storage.

FORK AND CRANE TRUCKS, HOISTS, PORTABLE ELEVATOR, PALLETS, BRIDGE CRANE

Main supply depot of the Stores Department of the Erie Railroad is neat, easily inventoried storage facility. Wide scope of materials stocked and volume of activity make efficient handling methods imperative.

AT HORNELL, New York, is located the Erie Railroad Stores Department, which undertakes the large-scale job of filling the wants of the entire system for materials, supplies and parts.

Here the department operates its principal supply depot, which is augmented by divisional and operational storehouses at strategic points along the line. Tens of thousands of parts are stocked against current needs, and one of the basic problems is that of handling and warehousing the wide variety of material required.

Classification Keeps Order

With the volume and diversity of goods processed in and out of stock, methods and procedures are in a state of continual refinement, as constant analysis surveys one phase of operations after another, in light of current existing conditions.

Basic to operations is the material classification system devised by the Purchases and Stores Division of the Association of American Railroads, which organizes by type all material handled. At Hornell

Vertical storage of boiler fronts saves space, handling—below. Crane is removing unit.

Good storage practice for material in kegs, right. Erie Supply Depot uses two pallet sizes.

these materials are divided among six "Sectional Storekeepers" reporting to the Division Storekeeper at that point. These sectional storekeepers have the responsibility of ordering, inventorying, and shipping materials to the line and are held responsible for the entire operation within their section. Their sections are alphabetically arranged "A to H" inclusive, generally, covering material as follows:

A. Tools, packing, boiler lagging and maintenance of way materials, etc.

B. Locomotive castings and forgings, springs, power house materials, etc.

C. Bolts, nuts, pipe and pipe fittings, tubing, brass products, etc.

D. Wheels, iron and steel, flues, arch brick, etc.

E. Locomotive specialties, boiler checks, hardware, air brake material, etc.

F. Train supplies; lamps, lanterns, paints, brushes, electrical materials, etc.

G. Oils and waste.

H. Car shop: car materials.

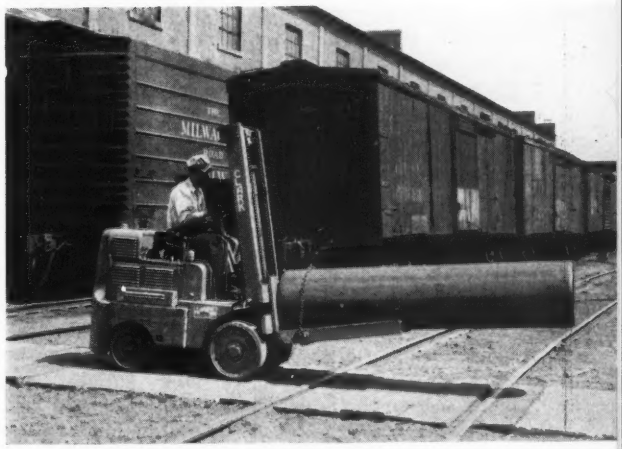
Materials are ordered, delivered to sections by use of this alphabetical classification on purchase orders, and are to the fullest practical extent stored within the section.

Metal signs extend from the end of the racks to the main aisle (like thumb marking in book) informing stockkeepers and others where to look for the material desired.

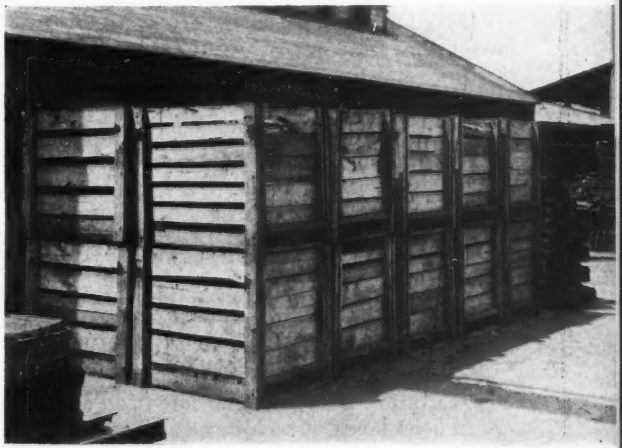
Divided Drawer, Space Utilizer

The storage space within the storehouse is devoted for the most part to small items which can be conveniently placed in bins, or on racks or pallets. For example, most items in groups A, C, E and F are in this category. Many of the parts in these groupings are stored in tiered metals trays a few inches deep. Formerly they were laid on shelves, a tag at the end describing the parts. But inventories were difficult as the material had to be counted piece by piece. To provide more space and easier and more accurate storing and counting, shallow drawers made of sheet metal were added which generally fill the racks. Prior to this time they held but two or three layers. Now, several times that many layers are

Large volume of drums is handled—without manual effort—by electric hoist operator.



For travel through narrow roadways: reservoir is on special steel pallet with a chain.



Mass-handling is assured by use of these pallet boxes, which contain brake shoes.

provided on each shelf.

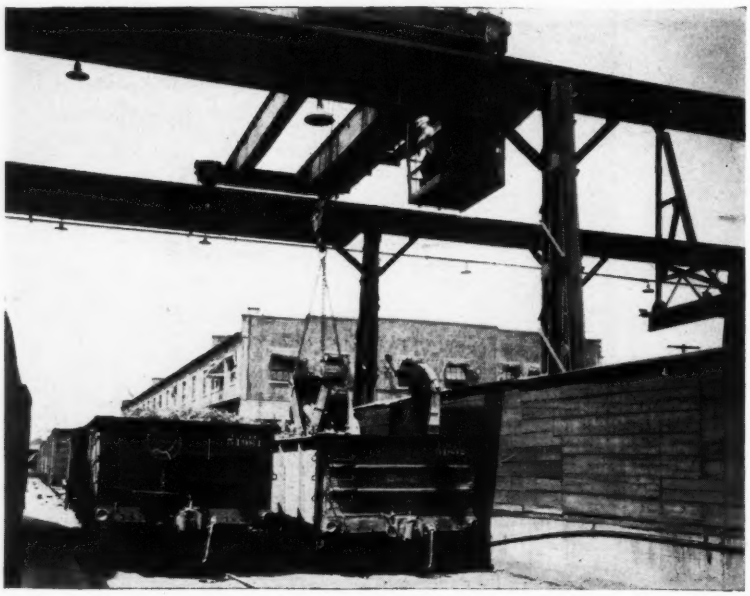
Some of the drawers have two or three compartments in them, which means they can hold three different sizes of a part. This is particularly advantageous when storing items such as tool bits, of which there are usually only two or three of a size in stock at one time.

A precaution has been taken to avoid a stock clerk overlooking one of the rear compartments in a deep drawer while taking inventory. On the front of each drawer is a white numeral—1, 2 or 3—which indicates the number of compartments in the respective drawer. Thus the stock clerk knows exactly how many sections he must check while taking inventory.

It may be noted that the stock book sheets on which inventories are taken are designed to give piece-count totals for six years on one side, and for six years on the other, with a small section at the upper left-hand corner of the facing page for the previous six years' inventory totals. Thus is provided a total story for 18 years on one sheet. The paper must naturally be a good grade of bond to withstand usage for that length of time.

Lifter for Upper Shelves

Material handlers, before portable elevators were brought into use to hoist boxes of such items as stay bolts, manually unloaded the boxes and placed the bolts on a shelf as high as they could reach. Then they transferred them to a higher shelf, which meant double handling. Now, the boxes are lifted to the desired shelf by portable elevator and unloaded, or stored intact by sliding them on the shelf over the gravity roller bed of the elevator.



Scrap containers are collected by power trucks. Bridge crane then dumps containers into cars

A specially designed hand truck is used to move kegs. Two small wheels mounted to a welded steel frame approximately 18 inches wide provide the rolling surface, while four lugs about four inches long support the keg during moving. To hold the top of the keg, a detachable metal ring is used which fastens to one upright, snugs around the outside of the keg and fastens to the other upright member of the truck.

Phases of Outdoor Storage

Many of the items under Groups B, D, E, G and H will be found stored in the yards inasmuch as they are large and bulky. They are most easily handled in that location. Several different types of handling devices used in this area include various types of powered trucks, hand trucks and a locomotive crane.

Prior to the palletization program, items were often handled singly, which resulted in rehandling parts several times before they reached storage, and the same procedure was repeated during outbound car loading. Some material, due either to bulk or shape, still cannot be adapted to pallets, and is handled by crane truck. A caterpillar type crane will also be used in this operation.

An example of such a procedure is the unloading from freight car of a boiler front for a locomotive. This huge circular part, over seven feet in diameter, resembles a giant's dinner plate, flat around the outer circumference and somewhat concave for about four feet of the total diameter. Although flat piling of these large items was popular, a recently designed rack to hold the boiler fronts in a vertical position has resulted in space saving as well as in the elimination of the lost motion of lowering and raising.

Two car side angles, spaced about three feet apart, provide the base for this rack. Notches burned out of these members about six inches deep and 12 inches apart hold the boiler fronts when they are positioned on their edge in the rack. An accompanying photo shows the crane truck hoisting one of these boiler units from stock.

Most of the smaller parts for railroad cars or locomotives are either placed on pallets or some type of specially designed rack. The pallets are of two different sizes: 32″ x 48″, and 48″ x 48″. The latter size was adapted specifically for oil drum handling. (Four 50-gal. drums can be carried on each pallet.) Fork trucks move these and the other sizes to various locations either in the yard or storehouse.

Heavy crates and boxes are stored in the storehouse on baton stripping which the fork trucks pick up.

Special Racks for Guide Yokes

Kegs are stacked on the 32″ x 48″ pallet and are tiered from three to five high, the height being governed by the head room of the building where they are stored. This method of handling is a definite improvement over the former one-at-a-time method of handling kegs.

Guide yokes for locomotives re-

(Turn to page 64)

WHY GUESS *About Material Handling?*

By R. W. MALLICK, Assistant to Director

Headquarters Manufacturing Engineering Department
Westinghouse Electric Corporation, Pittsburgh, Pa.

Here are three forms, developed by Westinghouse engineers and equipment makers, designed to answer the question: what equipment shall I use for a given type of material? This analytic approach is doing a job for Westinghouse —it may help you avoid guesswork and costly trial-and-error methods in arriving at the most efficient method.

THE key to materials handling problems is analysis. Too often problems are solved by snap judgments. Many of us are inclined when faced with a materials handling decision to say "That's a job for a lift truck" or "We will put in a gravity conveyor" and let it go at that. Such a solution is sheer guess work and may well lead to costly errors.

To help eliminate this kind of decision the materials handling

Figure 1—The form at right tells the handling analyst what problems are posed by a given type of material.

HEADQUARTERS PLANT LAYOUT & MATERIALS HANDLING SECTION — WESTINGHOUSE ELECTRIC CORPORATION

SINGLE ITEM MATERIAL HANDLING QUESTIONNAIRE

DIVISION _____ WORKS _____ COMPILED BY _____
BUILDING NO. _____ SECTION NO. _____ DATE 7-19-46
STATE PROBLEM & DESIRED RESULTS BRIEFLY CORES

MATERIAL
DESCRIPTION SPLIT, WOUND CORES GANGED TOGETHER
SIZE 3" x 2 1/2" x 5" SMALLEST 2" x 7" x 13" LARGEST
WEIGHT OF PIECE 35 # AV.
SHAPE (FURNISH SKETCH) SEE BELOW
CONDITION (WET-HOT-FRAGILE-STICKY-FLUID-ETC) DRY
INDIVIDUALLY PACKAGED - KIND? NO

CONTAINER
NAME (CRATE-CARTON-TOTEPAN-KEG-ETC) TOTE PAN
SIZE (OUTSIDE & INSIDE) 28" x 17" x 14"
CONSTRUCTION STEEL
WEIGHT (EMPTY) 30 #
CONTENTS (NO. PIECES & WEIGHT) 18 PCS. @ 35 # = 630 #
DISPOSAL (EMPTY CONTAINER) RETURN TO CORE DEPT.

LOGISTICS
DELIVERED BY (RAIL-TRUCK OR OTHERS) SKID AND ELEC TRUCKS
QUANTITY IN EACH DELIVERY 12 TOTE PANS - 18 CORES IN EACH PAN
FREQUENCY OF DELIVERY 21 LOADS PER 24 HOURS
DISTANCE FROM (RECEIVING POINT OR SETDOWN) TO (STORAGE OR SETDOWN) 1000 FT.
STORAGE METHODS & HEIGHT (RACKS OR FLOOR) TOTE PANS STACKED 10 HIGH BY OVERHEAD CRANE.
NORMAL AMOUNT ON HAND 1,200,000 CORES
NORMAL & MAX. AMT. MOVED AT ONE-TIME 216 CORES
FREQUENCY OF MOVE HOURLY
DESCRIBE FLOOR TYPE-CAPACITY & CONDITION CONCRETE (GROUND LEVEL FLOOR)
CLEAR CEILING HEIGHT IN AFFECTED AREA 14' - 6"
DESCRIBE PRESENT HANDLING EQUIPMENT & METHODS OPERATOR LOADS CORES IN TOTE PAN. OVERHEAD CRANE LIFTS TOTE PAN TO SKID. ELECTRIC TRUCK MOVES SKID TO STORES OVERHEAD CRANE STACKS AND UNSTACKS TOTE PANS. ELECTRIC TRUCK DELIVERS SKIDS OF TOTE PANS TO ASSEMBLY. OVERHEAD CRANE REMOVES TOTE PAN TO LAYDOWN.

REMARKS _____

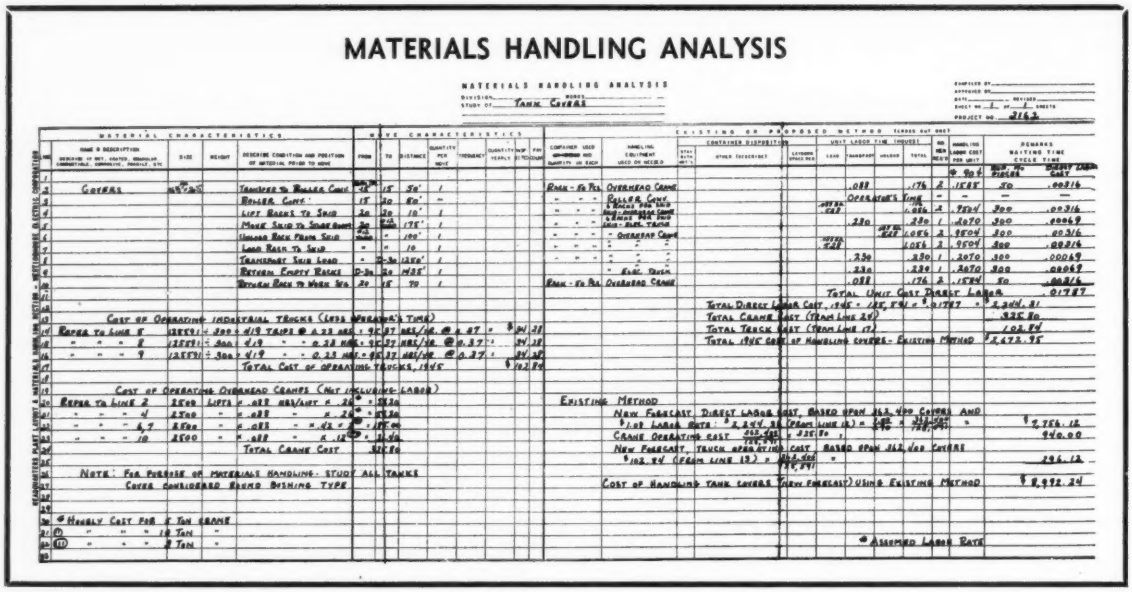


Figure 2—This is the Material Handling Analysis form, an actual working copy, which is designed for a complete and detailed analysis of a handling problem. The article gives three specific functions of this form.

engineers of the headquarters staff of the Westinghouse Electric Corporation made a study of the problem in consultation with equipment makers. They came up with three standard forms valuable in making analyses where material handling is involved. Using the forms to collect data solves many problems automatically. The forms are (1) a "Single Item Material Handling Questionnaire" (2) a "Material Handling Analysis" form and (3) a composite chart showing the types and classifications of materials handling equipment.

The single item materials handling questionnaire (Fig. 1) contains the questions that apply when a single item of materials must be moved. It does not cover every condition, but is sufficiently general in scope to permit the analyst to grasp the complexity of the problem.

When all the questions are answered and any other obvious data has been included under remarks, a basis for solving the problem is at hand.

The material handling analysis form (Fig. 2) is more detailed and is intended to cover a complete analysis. By its use a single item can be followed through an entire sequence of operations. Also any number of items can be charted on this form, resulting in a complete analysis for a plant or product.

One feature of the form that adds to its usefulness is its adaptability to either existing or proposed method studies. This reduces the number of forms needed and the amount of paper work required.

The composite chart (Fig. 3) showing the types and classifications of materials handling equipment is referred to after the data has been collected in the analysis. The materials handling engineer can consult the chart and quickly determine what equipment is available for each type of handling operation. If he is familiar with each type he can proceed to specify his requirements. If not, he can call in suppliers' representatives who deal in the class of equipment that appears to fill his needs.

In any event, equipment selection will be based on fact not fancy, and the likelihood of arriving at the correct solution will be much greater. Avoid guesswork—it costs too much!

FIGURE 3—THE COMPOSITE CHART IS REPRODUCED ON THE FACING PAGE, AGAIN AS USED BY WESTINGHOUSE. ON THE BASIS OF THE DATA COLLECTED, IT GUIDES THE MATERIAL HANDLING ENGINEER IN SPECIFYING THE TYPES OF EQUIPMENT NEEDED FOR ANY WORK AND ALL THE MATERIALS INVOLVED IN THE ANALYSIS.

MATERIALS · HANDLING EQUIPMENT · CLASSIFICATION & NOMENCLATURE

Either Mobile or Fixed Group — Mobile Group

1 CRANES

SER. NO.	TYPE	ITEM
.1CC	OVERHEAD ERIDGE TRAVELING	.101 POWER, CAB DRIVE .102 MANUAL, CHAIN DR. .103 PUSH TYPE .104 WEIGH LARRY .105 TRAVELING PLATFORM .106 .107 .108 .109 .110
.2CC	OVERHEAD ERIDGE NON TRAVELING	.201 .202 .203 .204 .205 .206 .207 .208 .209 .210
.3CC	GANTRY TRAVELING	.301 PORTAL .302 SEMI-PORTAL .303 PORTABLE .304 FOLDING JIB .305 .306 .307 .308 .309 .310
.4CC	GANTRY FIXED	.401 TOWER .402 WHIRLER .403 .404 .405 .406 .407 .408 .409 .410
.5CC	JIB	.501 COLUMN, ROTARY .502 WALL BRACKET .503 PILLAR-JIB .504 PORTABLE .505 BRACING TYPES .506 WALKING-JIB .507 WALL TRAVELING .508 FOLDING-JIB .509 .510
.6CC	PILLAR	.601 STRAIGHT BOOM .602 CURVED BOOM .603 .604 .605 .606 .607 .608 .609 .610
.7CC	LOCO-MOTIVE	.701 FLATCAR MOUNT .702 CRAWLER MOUNT .703 TRUCK MOUNT .704 FLOATING .705 PILE DRIVING .706 WHARF .707 WRECKING .708 DRAG LINE .709 MAGNET .710 BUCKET TYPES
.8CC	DERRICK	.801 SULKY .802 STIFF LEG .803 GUYED TYPE .804 POLE TYPE (GIN) .805 TOWER .806 PORTABLE .807 BREAST .808 "A" TYPE .809 .810
.9CC	SPECIAL	.901 TOWER CRANE .902 FLOATING CRANE .903 WHARF - GANTRY .904 GANTRY - LOCO. .905 TRANSFER .906 CANTILEVER .907 HAMMERHEAD .908 SAFETY CODES .909 .910
.1CCC	CABLEWAYS SUSPENSION	.1001 ENDLESS CABLE .1002 SINGLE CABLE .1003 TELPHER .1004
.11CC	CABLEWAYS TRAMWAY	.1101 OVERHEAD .1102 SURFACE .1103 INCLINE PLANE .1104

ACCESSORIES

2 CONVEYORS

SER. NO.	TYPE	ITEM
.1CC	ROLLER GRAVITY	.101 SPIRAL .102 PORTABLE .103 ROLLER (PLAIN) .104 "V" TROUGH .105 DOUBLE DECK .106 .107 .108 .109 .110
.2CC	ROLLER LIVE	.201 GEAR .202 CHAIN .203 BELT .204 PUSH BAR .205 MAGNET .206 .207 .208 .209 .210
.3CC	WHEEL	.301 WHEEL .302 PORTABLE .303 DISC .304 CABLE DRIVE .305 .306 .307 .308 .309 .310
.4CC	BELT	.401 PORTABLE .402 TROUGHED .403 PYLER .404 FLAT .405 FEEDERS .406 METAL .407 TOWER AND TRACK .408 .409 .410
.5CC	DRAG	.501 PUSHER BAR .502 ROTARY .503 SCREW .504 FLIGHT .505 ENMASSE .506 FLOOR CHAIN BUGGY .507 CHAIN .508 DRAG SCRAPER .509 CHAIN DIG LOADER .510 WASHER (SCREW)
.6CC	APRON	.601 WOOD SLAT .602 STEEL SLAT .603 CARRIER CHAIN .604 STEEL PAN .605 FEEDER .606 .607 .608 .609 .610
.7CC	BUCKET	.701 PECK CONVEYOR .702 .703 .704 .705 .706 .707 .708 .709 .710
.8CC	BALL AND CASTER TRANSFER	.801 BALL TRANSFER .802 CASTER TRANSFER .803 .804 .805 .806 .807 .808 .809 .810

ACCESSORIES

3 TRACTORS & TRAILERS

SER. NO.	TYPE	ITEM
.1CC	TRACTOR ROAD	.101 CRAWLER .102 ROAD TRACTOR .103 HALF TRACKS .104 TRENCHER .105 EXCAVATOR .106 GRADER .107 SHOVEL .108 DRAG LINE .109 ROLLER .110 CRUSHER .111 SWEEPER .112 BUCKET
.2CC	TRAILER ROAD	.201 SEMI-TRAILER .202 4-WHEEL TRAILER .203 LOW PLATFORM .204 POLE TYPE BOLSTER .205 TRACK LAYING .206 NEDILE LOAD'G. PL'T'M .207 PUMP .208 GRADER .209 .210
.3CC	TRACTOR INDUSTRIAL	.301 3-WHEEL .302 4-WHEEL .303 TRAILER TRAIN .304 PUSHER METHOD .305 .306 .307 .308 .309 .310
.4CC	TRAILER INDUSTRIAL	.401 CASTER STEER .402 5TH WHEEL STEER .403 4-WHEEL STEER .404 SIDE DUMP .405 BOLSTER .406 STEVEDORE .407 TOOL WAGON .408 .409 .410
.5CC	SPECIAL	.501 MARINE TRACTOR .502 .503 .504 .505 .506 .507 .508 .509 .510

ACCESSORIES

4 TRUCKS (SKIDS & PALLETS)

SER. NO.	TYPE	ITEM
.1CC	ROAD MOTOR TRANSPORT	.101 CRAWLER .102 VAN .103 COMMERCIAL .104 DUMP BODY .105 ELEV. LADDER TOWER .106 SPREADER .107 CRANE MOUNT .108 TANK .109 .110
.2CC	INDUSTRIAL HAND MANUAL OPERATION	.201 PLATFORM (PUSH) .202 HAND LIFT (FOR SKIDS) .203 BARREL (2-WHEEL) .204 STEVEDORE (2-WHEEL) .205 BOX (LOW FRAME) .206 PALLET LIFT (PULL) .207 SCALE TRUCK .208 DOLLY .209 GEAR TYPE .210 SUPERSTRUCTURES .211 REEL TRUCK .212 CARBOY TRUCK
.3CC	INDUSTRIAL HAND POWER DRIVE	.301 PALLET .302 PLATFORM .303 .304 .305 .306 .307 .308 .309 .310
.4CC	INDUSTRIAL POWER NON-LIFT TYPE	.401 LOW PLATFORM .402 HIGH PLATFORM .403 .404 .405 .406 .407 .408 .409 .410
.5CC	INDUSTRIAL POWER LIFT TYPE	.501 LOW LIFT PLATFORM .502 HIGH LIFT PLATFORM .503 TELESCOPIC PLT'F'M .504 NON-TELE. FORK .505 TELESCOPIC FORK .506 RAM-TELESCOPIC .507 PLATFORM CRANE .508 MANUAL STEER-PR. LIFT .509 .510
.6CC	POWER ROAD OR INDUSTRIAL SPECIAL TYPES	.601 STRADDLE .602 RIGID BOOM .603 SWINGING BOOM .604 DUMPSTER .605 .606 .607 .608 .609 .610

ACCESSORIES

5 R. R. EQUIPMENT

SER. NO.	TYPE	ITEM
.1CC	ENGINE TYPES	.101 ELECTRIC .102 STEAM .103 DIESEL .104 FIRELESS .105 TROLLEY .106 SWITCH .107 .108 .109 .110
.2CC	CARS STANDARD GAUGE	.201 BOX .202 GONDOLA .203 FLAT .204 TANK .205 HOPPER .206 POST .207 CAR DUMPER .208 .209 .210
.3CC	CARS NARROW GAUGE	.301 SIDE DUMP (AUTO) .302 SIDE DUMP (MANUAL) .303 AIR DUMP .304 .305 .306 .307 .308 .309 .310
.4CC	TRACKAGE	.401 RAILS .402 TIES .403 GAUGES .404 SWITCHES .405 FROGS .406 TURNTABLES .407 .408 .409 .410
	SPECIAL	

ACCESSORIES

6 TIERING MACHINES

SER. NO.	TYPE	ITEM
.1CC	FIXED FRAME PORTABLE	.101 2-POST - MANUAL .102 4-POST - MANUAL .103 REVOLVING BASE .104 2-4 POST - POWER .105 .106 .107 .108 .109 .110
.2CC	TELESCOPIC FRAME PORTABLE	.201 2-POST - MANUAL .202 4-POST - MANUAL .203 2-4 POST - POWER .204 SUSPENDED .205 .206 .207 .208 .209 .210
.3CC	SPECIAL	.301 .302 .303 .304 .305 .306 .307 .308 .309 .310

ACCESSORIES

7 LIFTS & HOISTS

SER. NO.	TYPE	ITEM
.1CC	ELEVATOR FREIGHT	.101 ELECTRI .102 HAND PO .103 HYDRAUL .104 PNEUMA .105 .106 .107 .108 .109 .110
.2CC	ELEVATOR PASSENGER	.201 ELEC .202 HYD .203 HAN .204 PNE
.3CC	ELEVATOR DUMB-WAITER	.301 ELE .302 HAN .303 .304
.4CC	ELEVATOR SHORT RISE SIDE-WALK OR FLOOR	.401 E .402 H .403 H .404 P .405 .406 .407 .408 .409 .410
.5CC	ELECTRIC STAIRWAY	.501 .502 .503 .504 .505 .506 .507 .508 .509 .510
.6CC	HOISTS RECIPROCATIVE	
.7CC	LIFTS CONTINUOUS	
.8CC	HOIST UNITS	
.9CC	SPECI	

ACCESSORIES

HANDLING REPRESENTS THE GR

PACKAGING MECHANICS

A regular monthly section in which are presented solutions to the problems of efficient filling and handling the boxes, cartons, bags, bottles, cases, etc., used in commerce and industry.

Streamlined Flow for 100-Pound Bags

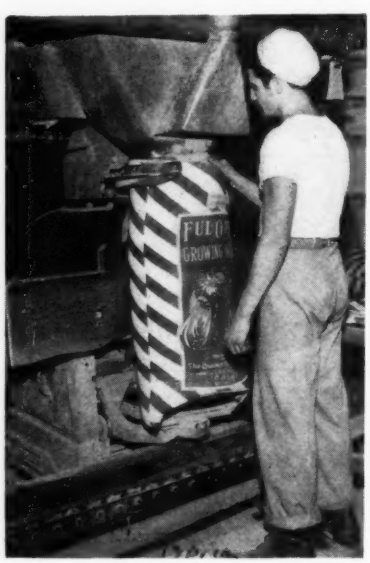
Two objectives gained in this company's bagging operation:
1. Fifty per cent production increase with no increase in labor.
2. Eight 100-pound bags a minute with two operators.

POULTRY mash is but one of the many products packaged by the Akron Plant of the Quaker Oats Company. This operation takes place in a small segment of the second floor of the plant, in an area that is only 20 by 50 feet. The result is a compact layout with four packing stations. Various types of poultry mash are bagged at the four stations. Three of these are one-man operated, while the fourth (this one is for 100-pound bags) is operated by two men, a bagger and sewer. This description covers the 100-pound bag filling operation. Single-manned stations pack 25-pound bags. These can be converted to two-man operations when the need arises.

One Continuous Process

A 10-ton capacity storage hopper extends from the third to the sixth floor and has allowed maximum use of gravity feed. On the third floor, mash is transferred from the main storage bin to the feeder bin of the bagging machine. A 12-inch totally-enclosed screw conveyor moves the material at this point. Should the feeder bin empty out for any reason, a light at the bagging station on the second floor automatically warns the operator. This safety check indicates any break in the continuous flow and prevents pile-up at the feed point. Mash is automatically weighed prior to bagging. The weighing mechanism is a part of the bagging equipment.

On the 100-pound packing line,



Automatic packer filling 100-pound sacks.

the bagger and sewer work as a team. They are stationed approximately six feet apart on a straight line. A slightly raised platform positions the bagger and sewer so that the feeding spout and stitcher are approximately waist level. On the bagger's right is a table (also at waist height) that holds 200 empty bags. The operator's hands are always free, as both machines are pedal-operated. As the operator places the empty bag on the feeder spout he kicks the pedal with his right foot, actuating the filling mechanism. From this point on he is relieved of all manual handling. The bag is held mechanically in place for filling.

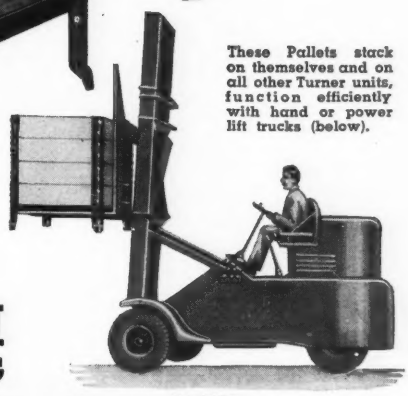
The bags are suspended under the feeding spout by two holding clamps at the top and an oscillating arm at the bottom. The bottom holder is shaped like a cradle and has two cross-chain grips that hold the bags in firm position during filling. Due to the nature of the product (fine grainy substance), it is necessary to have this oscillating action for firm packing. When the pedal is released, both the top and bottom holders slide out of the way and the bag drops down to a 15-inch conveyor belt. The bags are held upright by a guide rail on their way to the stitcher.

A close check of weights is maintained. An indicator on the left of the bagging machine shows if the scale is over or under weight. Since the machine weighs each batch before filling, it is 99% accurate. A positive check on the machine is

Pallets that STAND UP —in MORE than ONE WAY!

Stacking Pallet with "non-skid" Floor Plate Deck.

Wooden Deck Pallet — one of several types.



These Pallets stack on themselves and on all other Turner units, function efficiently with hand or power lift trucks (below).

You Get

BIG SAVINGS in Pallet Costs

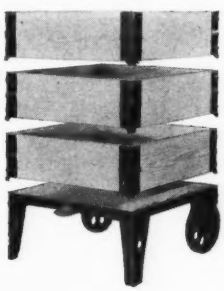
Increased Efficiency in to-the-ceiling Stacking with these extra rugged units of

THE TURNER SYSTEM
OF MATERIALS HANDLING

Complete Information on these new, 8-Way Accessibility, Cost-Reducing Pallets Now Ready for You

"DELIVER THE BIN AND SAVE THE HANDLING" cuts labor costs. Wooden-side or All-steel Bin Sections, Racks, Trays and Die Tables fit on the Turner Transport which is moved by hand Jimmy, power lift truck, crane or tractor.

The TURNER SYSTEM shows you how to double available floor space, reduce handling costs up to 50%, cut equipment costs. It is standardization to the Nth degree—find out how it can pay you.



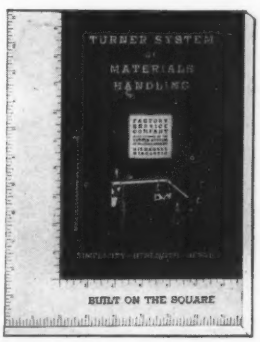
RIGHT SIZE Bins save time. Bin Sections are removed as load diminishes, added as load increases. No time wasted "diving" to bottom of oversize bin.

Line these Shelf Racks up side by side for vertical and horizontal expansion. Quickly moved as needed.

Floor Plate Deck Transport—one of several types which serve as movable bases for many units.

This FREE IDEA BOOK *tells all about it*

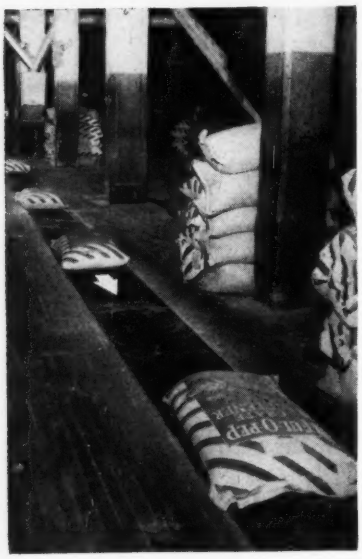
Thousands of manufacturers are sending for this new Idea Book which will open your eyes to new savings in materials handling. Write for your copy today!



FACTORY SERVICE COMPANY
4607 NORTH TWENTY-FIRST STREET — MILWAUKEE 9, WISCONSIN

maintained by a floor inspector who weighs a certain number of bags in every hundred. Another indicator on the machine's right shows the batches dumped within a given period.

Filled bags move from the filler to the sewer on an eight-foot length of conveyor belting. An analysis tag is stitched on at the same time



Delivery to first floor via chute. Sacks on floor conveyor are being carried to rail cars.

sewn. It is interesting to note how the company has overcome an employee fatigue problem. As mentioned previously, both machines

Belt conveyor carrying sacks to stacker in rail car on first track of two-track siding.

are pedal-operated. However, the filler is right-foot operated and the sewer is controlled by a left-foot pedal. The operators are shifted every 100 bags, and thus each one gets a chance to use his right and left foot alternately.

From Packing to Rail Cars

At the end of the packing line, filled bags drop through a two-foot square entrance to a gravity chute. As they reach the first floor they are shunted over a checking table to a two-foot-wide belt floor-conveyor. The bags are then conveyed for 40 feet to the rail siding. The level of the dock is the same as the car, permitting the bags to move directly to the stackers. Many times it is necessary to load through a car, as well as direct. When this is the case, a section of roller conveyor carries the material through first car and into second.

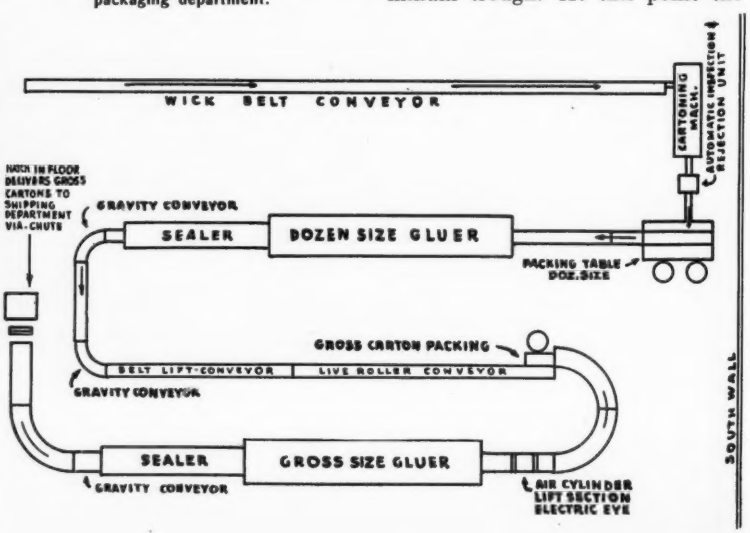
The present operation has eliminated much manual handling between work stations, with the resultant increase in production. The new method provides for continuous flow between filling, sewing and the disposal point by conveyor. Faster filling is obtained by means of this type of bagging equipment.

Two operators pack 2400 stove wicks per hour—in a compact layout in which automatic and semi-automatic packaging equipment is coordinated.

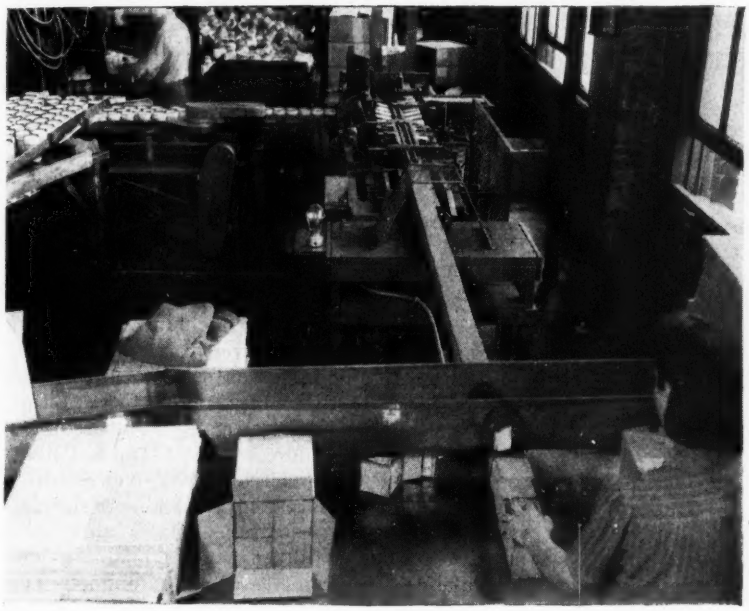
WICKS for kerosene and oil burning stoves are still in considerable demand. This article describes the modern methods for this old-time product in a compact layout designed for economical handling. This manufacturing concern packages one style of wicks at the rate of 2400 units an hour with but two employees in the packaging section. The cartoning of this product is automatic. Packing of the cartoned wicks into dozen and gross lots is semi-automatic. All wicks are packaged in the one section located on the south end of the second floor. The flow diagram accompanying this article indicates the various types of equipment used for cartoning, sealing, compression and conveying.

The wicks, consisting of a metal carrier and cotton wicking, are belt-fed from the burn-off machine to the automatic cartoning equipment. (See photos.) As the operator removes the wicks from the burn-off machine, (this is the last production operation) he slides them down a slightly inclined, 2½-foot-long chute. Moving at right angles to the chute is a 12-inch-wide canvas conveyor belt. It feeds the product to the automatic cartoning equipment. As the wicks near the machine a separator allows but one wick to enter at a time. The cartoning machine holds 300 flat cartons. It opens them, inserts the wicks, tucks in the carton flaps, and deposits the fully cartoned wicks on a polished aluminum trough. At this point the

Flow diagram shows work stations in efficient packaging department.



packages are ejected from the machine and then moved through the trough to the packaging table. This trough always contains a solid line of containers, so that as they are released from the machine they move forward to the packing station. A positive check of each carton is made as the wicks move through the trough. The checking device, based on the magnetic flux principle, will not allow an empty unit to pass. Should an empty one appear in the line, this device will shut off the machine and flash a red light. The packing operator (she has full control of the cartoning machine from the packing table) then removes the empty carton and starts the equipment again.

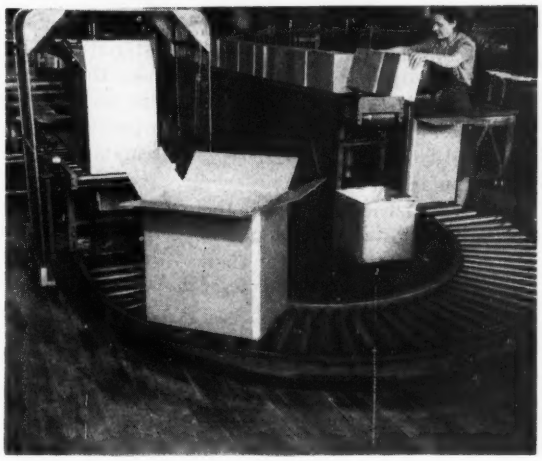


Wicks from the automatic cartoning machine passing through trough to dozen packers.

Dozen Packers

The aluminum trough is positioned in the center of the packing table. The next step is to pack the individual containers into one-dozen cartons. The two packers fold the carton flats and pack two pieces at a time. The containers are packed in cartons two layers high, two wide and three deep. The operators are positioned on either side of the trough.

After packing, the dozen size cartons are slid onto a 10-foot gravity roller conveyor, four at a time. This timing is important to allow for compression after sealing. Adjustable guides on the roller conveyor keep the cartons in position for the gluing machine. Its belt timer extension picks up the cartons from the gravity conveyor and carries them onto the platen. The gluer applies glue to both the top and bottom flap as the carton is moved through the 12½-foot length. The carrier bars are spaced 30½ inches apart. This equipment can be adjusted to meet varying carton sizes. The product is then packed in one-gross cases.



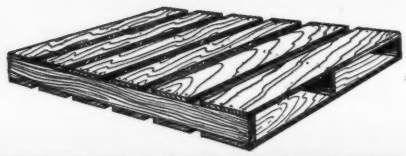
Packer placing gross cartons on level roller container. Note plates used for positioning of these cartons.

Gross Packing

Two 90-degree turns and a four-foot section of roller conveyor complete the turnback to the second parallel line of the S-shaped layout. A powered belt conveyor carries the packaged product up an incline from 20 to 38 inches in elevation. A case turner is located ahead of a live roller conveyor, next in line, as shown in the diagram. This device turns all cartons the same way so that the gross packing operation is considerably simplified. Since this station is located opposite the one for dozen packing, the two packers are able to serve both stations. For example, when 24 one-dozen size cartons are ready for gross packing, the operator walks the few steps necessary and is able to clear the live conveyor line in a few minutes' time. Flats are folded by the packer and then placed on a level section of roller conveyor as shown in a photo. This conveyor is placed 10 inches above floor level in order to position the cartons to waist level of the operator. Positioning plates are a great aid in this operation, enabling the operator to drop the dozen-size containers from the live roller conveyor into the carton. The operator packs three one-dozen cartons at a time, as shown. After packing, the gross load is slid onto two 90-degree sections of gravity roller conveyor for eventual movement to the gluing machine.

The bed of the gross carton sealer is considerably higher than

(Turn to page 63)

ON THE  PALLET

NEWS · VIEWS · TRENDS

SPONSORS of the 2nd National Material Handling Exposition will be the following four associations: Caster & Floor Truck Manufacturers' Association; Hand Lift Truck & Portable Elevator Manufacturing Association; Electric Industrial Truck Association; The Material Handling Institute, Inc.

THE Baker-Raulang Company, Cleveland, one of the country's largest manufacturers of power industrial trucks, tractors and cranes, is increasing its productive capacity by 50 per cent to meet the growing demand for its products from heavy industry, it was announced today by E. J. Bartlett, president.

An addition to the Company's No. 2 factory in Cleveland is already under construction. Four new 40-foot by 180-foot bays with craneways adjacent to railroad switches will provide improved facilities for the assembly, finish testing and shipping of heavy power industrial trucks, tractors and cranes for its Baker Industrial Truck Division. Five more bays, to be added later, will increase productive capacity for material handling equipment 50 per cent.

THE Edison Storage Battery Division of Thomas A. Edison, Inc., has inaugurated a plant-expansion program, involving an expenditure of $2,000,000, according to an announcement today by George E. Stringfellow, vice president of Thomas A. Edison, Inc., and general manager of the Edison Storage Battery Division. The division manufactures Edison Nickel-Iron-Alkaline Storage Batteries, Edison Miners' Safety Electric Cap Lamps, Edison Portable Lighting Outfits, pharmaceutical iron, and other products employing Edison Nickel-Iron-Alkaline Batteries or by-products of their manufacture.

Mr. Stringfellow explained that the business of the Edison Storage Battery Division since the war has been at an average volume 50 per cent greater than the average during the three years immediately prior to our country's entry into the war, this indicating a long-term growth trend.

THE General Box Company, Chicago, announces that plant facilities for the manufacture of stitched panel crates have been increased. New equipment and experienced personnel have been added to one of the company's southern plants, with volume production of stitched panel crates scheduled this month. Additional production of this type of shipping container is one of several projects of the company that will expand its plant facilities and make available a variety of products to its customers.

PLANS are progressing for the Second National Material Handling Exposition in Cleveland, January 1948. Exhibitors are particularly urged to instruct their advertising departments and agencies to make reference to the Exposition (including dates and place) in all publication advertising, direct mail, house organs, etc. Reproduction proofs of the official sticker for the Exposition are available to exhibitors to tie into such ads and direct mail pieces. Requests for stickers should be addressed to: Clapp & Poliak, Inc., Empire State Building, New York, New York.

The Exposition Management plans also to develop a small leaflet giving the salient facts about the Exposition and these will be made available in unlimited quantity without charge, to exhibitors. The leaflets will fit all standard sizes of envelopes and will not add to your mailing cost. When ordering your supply, please indicate the approximate date that you plan to mail them. The cooperation of exhibitors in attendance promotion means a more favorable Exposition for all.

LYON-Raymond Corporation, Green, N. Y., celebrated with Open House, Saturday, June 28, at the plant and offices for local residents, employees, stockholders, business associates, and many others from other cities in observance of a triple anniversary occasion.

This marked 25 years of administration of the material handling equipment manufacturing concern under the management of George G. Raymond, president and treasurer, also 60 years (1887-1947) of incorporation of the concern and 107 years (1840-1947) of manufacturing record.

Guests were escorted through the plant and offices by the executives of the firm and were later served refreshments. Various types of hydraulically-operated Material Handling Equipment were on display. Attendance was estimated at about 600. People from surrounding areas, as well as distant points, dropped in to pay their respects to George G. Raymond.

THE adaption of sales promotion methods to personnel work is shown in a Safety Campaign at the Portland, Oregon Plant of the Hyster Company, manufacturers of lift trucks and tractor-mounted equipment.

R. W. Ager, personnel manager, was faced with the problem of reviving safety habits and practices which had not been emphasized since the last days of the war. He got the idea to use safety slogan match

(Turn to page 68)

Shipping Savings

Old Cost, 90¢; New Cost, 40¢

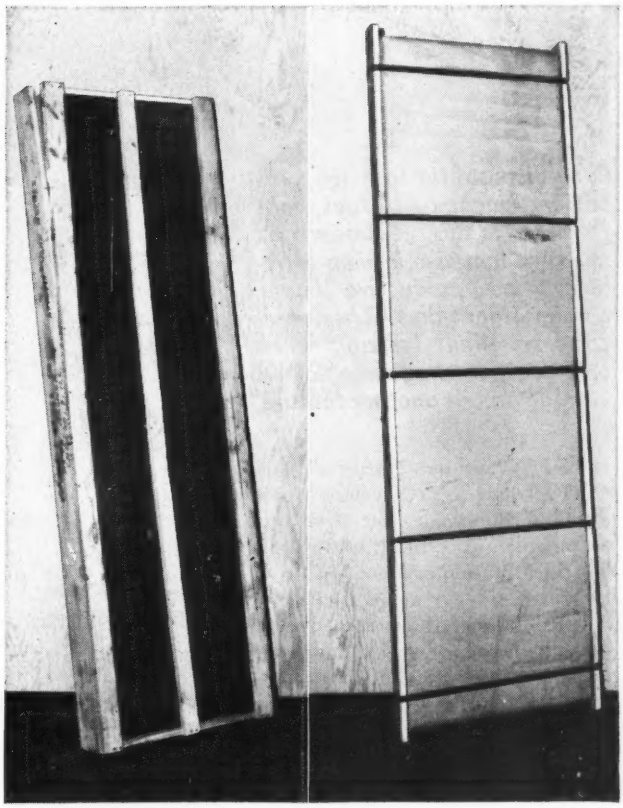
West Pittsburgh, Pa., radiator manufacturer uses Acme Steelstrap for better shipping

Every business has its own packing and shipping problems. In low-profit, high-volume operations, the difference between red and black ink at the end of the year often can be determined in the shipping room.

After Shaw-Perkins Manufacturing Company analyzed its shipping costs, an Acme Shipping Specialist was called. The savings his suggestions made on just one item—a 25-section wall-type radiator—are described here.

Why not ask an Acme expert to consult with your firm? There is no obligation, and you may be able to make substantial savings.

Write for the new booklet, "SAVINGS IN SHIPPING," which gives actual case histories of packing and shipping savings made in many industries.

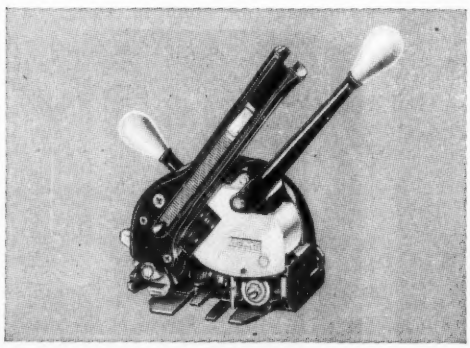


OLD METHOD

Each radiator was packed in a wooden crate in which lumber alone cost $.6477. Lumber, nails and labor came to $.9048.

ACME METHOD

Using Acme Steelstrap and 1.11 sq. ft. of lumber costs only $.4026 for labor and materials . . . savings, $.5022 per radiator.



More Savings for Acme Steelstrap Users—Acme Steelstrapper No. 3 is now available. It tensions, seals and cuts the strap in one operation. It's the lightest strapping tool ever made, has a small base requiring only a 5-inch strapping surface, its magazine holds 100 seals, and its two levers work in opposite directions for better balance and easier handling.

MAIL THIS COUPON TODAY

Acme Steel Company, Dept. F-97
2838 Archer Avenue
Chicago 8, Illinois

Gentlemen:
Please send me a copy of your case history booklet, "SAVINGS IN SHIPPING."

Name .....

Company .....

Address .....

City ..... Zone.... State.....

ACME STEEL CO.
CHICAGO

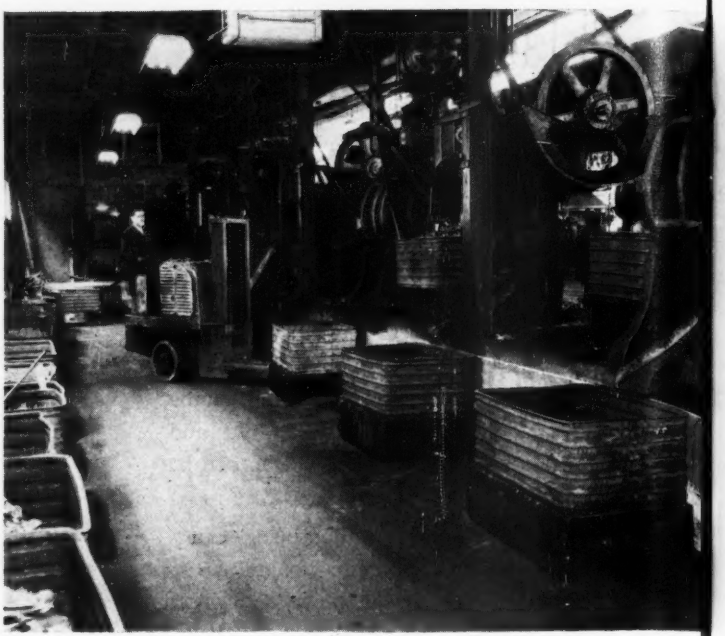
ACME STEEL COMPANY

NEW YORK 7 ATLANTA CHICAGO 8 LOS ANGELES 11

DROP DISPOSAL FOR FORGINGS

SKID BINS
FORK TRUCKS
HOISTING UNITS

Drop-disposal for forgings, plus better machine lay-out, has produced in this pressroom a six per cent increase in man-efficiency and productive hours, among other gains. The use of cab-controlled hoisting units on I-beam trackage in a narrow storage area is another feature.



Drop disposal: view of pit showing chutes that deliver forgings from presses to the skid bins.

THE Cleveland Hardware and Forging Co., Cleveland, produces forgings for the passenger automobile and truck industries. The heavy tonnage coming from the forging department used to be delayed in the press room due to machine layout, crowded floor conditions and excess manual handling of forgings and flashings (scrap).

These obstacles were overcome by redesigning the machine layout and providing drop-disposal for the forgings. The presses were re-arranged in two straight-line banks, with 10 presses in each row. Two pits were constructed, four feet below the main floor area parallel to the rear of each bank of machines. The pits are 16-feet wide and are made accessible to the main floor area by ramps at the east end.

This improvement has resulted in a six per cent increase in man efficiency and productive hours, a 3½ per cent reduction in machine idle time, and a 60 per cent reduction in non-productive manpower. In addition to the dollar-savings, the new arrangement has provided smoother product flow for a greater volume, neater housekeeping, and an improved safety record for the plant.

Drop-Disposal

Prior to the construction of the pits, the forgings from the presses were either thrown by the operator into a skid bin placed near the machine or allowed to drop to the floor where they were handled by a crew of laborers. Today, on the other

Upper level of press room. Note good housekeeping. There is one skid bin less at each press.

This is 5-ton hoisting unit at west end of storage area. I-beam track curves into building.

hand, the forgings drop through the die into a metal chute leading to the skid bins placed at the foot of each machine in the pit. Since the forgings are automatically removed via the chute, the press operators have more time for the production job. The spotting of the skid bins on the lower level—"out of the way""—has left the press room floor free of excess containers.

The loaded skid bins are hauled away by a 4,000-pound powered truck which moves freely into and from the pits over the ramps. One truck serves the 20 presses in the department. Since the pits are 16 feet wide, part of the floor area (along the walls) can be used for temporary storage until required for the next operation. In this way the pits serve as a central distributing point, making possible proper scheduling and control of stock to the heat treating, machining or sand blasting departments.

The one truck that serves the pressroom has other duties in addition to removing forgings from the pit. It supplies stock from the hammer room to the individual presses and transports skid loads of flashings to the general collection area for this material.

Improvement in the handling of flashings is another point gained by the drop-disposal method. Prior to its adoption, the operators were required to throw the forgings and flashings into separate bins, and the floor areas around the machines were constantly cluttered with scrap material. (Due to the less efficient machine layout at the time, the truck could not keep up with the loads.) It took a group of five shovelers, three on the day shift and two at night, in order to keep the floor area cleared. In addition to the better housekeeping standards gained by the drop-disposal method, the easy segregation of scrap was also accomplished. Previously, mixed cars were shipped and these brought a low price. Today, because each type of scrap is instantly segregated according to high and low carbon steel, the company receives the premium price for all cars.

Thus, under the drop-disposal method, floor congestion around the presses has been eliminated,

better control of material has been obtained by the creation of a central distributing point, a higher safety record has been realized, and the production volume has been increased.

Long Stock—Narrow Storage Area

The Cleveland Hardware and Forging Co. handles up to 100,000 pounds of bar and rolled stock daily. The stock arrives by rail car and highway truck. The receiving and storage area is a narrow, oblong space with the rail spur at the west end and the truck drive at the east. The entire area is served by two cab-controlled hoisting units operating at opposite ends of a 500-foot-long 24-inch I-beam track.

A five-ton hoist unloads the bundles of stock from the rail cars and delivers them to the storage building. The bundles are approximately 19 feet in length and are stacked crosswise on dunnage in the narrow space, which is approximately 22 feet wide, exclusive of access aisles on each side. Unloading of the highway trucks is accomplished by a four-ton, cab-controlled hoist. Both hoists use a spreader bar and chain sling.

The cab-controlled hoists also move the stock to production. A saw is located in the western portion of the storage building and the bundles are deposited on its bed. Five shears are located in a recess at the eastern end of the area. They cut the bulk of the stock before delivery to the hammer shop. The stock used is in diameters from 3/8 of an inch to four inches.

At the feed end of each shear is a transfer car on which the bundles of stock are deposited.

Since the two hoisting units move all stock twice—to storage and to production—it can be appreciated that they handle a sizable volume. Today, however, the company has practically outgrown the narrow storage facility which was designed some years ago for the smaller tonnage handled at that time. Hence a larger storage building is now being considered with overhead handling equipment of correspondingly greater capacity. But a company for whose volume the kind of narrow storage space described is adequate, can employ such hoisting units to good advantage.

PACKAGING AND MATERIAL HANDLING INSTITUTE

DEVELOPMENT of a one-week Institute on Packaging and Material Handling techniques to be held September 29 through October 3 at the Rackham Memorial Building, Detroit, is announced by the Wayne University School of Business Administration to fill the demands of industry for a concentrated educational program at the executive level in this field.

Representatives from major industrial concerns throughout the United States and Canada have requested the setting up of such an Institute to provide the latest information and discussion on this problem. With the assistance of the Industrial Packaging Engineers Association, national professional group, the University has outlined a series of lectures by prominent packaging and material handling authorities to be followed by open forum discussions and exhibits.

Visits to industrial and commercial organizations in the Detroit area will provide visual demonstrations and practical applications of the principles involved. Present methods will be shown as well as discussions of changes and revisions incorporated in future plans to improve package and material handling.

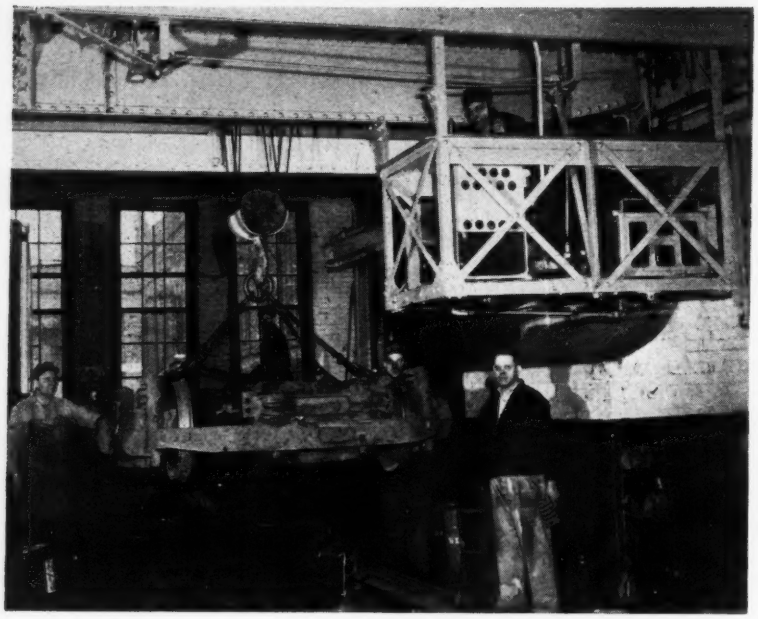
Representing something new in academic approach, the Institute is designed to show the relationship and interdependence of packaging and material handling work with procurement, transportation, distribution, warehousing, traffic management, production, and sales in modern business.

An Advisory Council of representatives concerned with the vital problems of packaging and material handling in business organizations from the "top drawer" of American industry is actively assisting in the planning and conducting of the Institute. They are:

H. C. Horning, Chrysler Corporation; P. S. Stout, Crowley Milner & Company; Charles E. Boyd, Retail Merchants Ass'n, Detroit Board of Commerce; Grant Arnold, Transportation Bureau, Detroit Board of Commerce; I. E. Thomas, G. E. Whiteford, John G. Downs, Ford Motor Company; Paul O. Vogt, General Electric Co.; Ralph A. O'Reilly, Jr., General Motors Corporation; S. Eugene Cartright, Chevrolet Division, General Motors Corp.; R. F. Weber, International Harvester Company; J. J. Cairns, The Great Atlantic and Pacific Tea Company; L. B. Sebrell, The Goodyear Tire and Rubber Company; R. B. Hiltz, The Hinde and Dauch Paper Company; R. G. Brown, The J. L. Hudson Company; George H. Lloyd, The J. L. Hudson Company; J. G. Witte, Montgomery Ward and Company; John E. Sweitzer, Parke, Davis and Company; H. B. Geary, Sears Roebuck and Company.

The Institute is conducted under the auspices of the Department of General Business, School of Business Administration, Wayne University, Detroit 2, Michigan.

Win part of $1,500 Prizes
See the announcement
on page 8 of the FLOW material
handling cost reduction contest.



Bridge crane spotting washed street car truck at position No. 1 for disassembly of unit.

Electric hoist on 16-foot jib is one of several. It removes lighter parts, relieves the bridge cranes.

How a public utility company operates . . .

A PROGRESSIVE REPA

A public utility company realizes a production dream with a progressive repair line for general overhaul of street car trucks. Cranes, hoists, and on-the-floor equipment are coordinated in moving the trucks and components through disassembly and then assembly in the straight-line operation.

HOISTS - - - CRANES

CHICAGO Surface Lines operates about 3,000 street cars (not counting hundreds of trolley and gas buses), and daily hauls the equivalent of 3,000,000 of the 4,000,000 people in the Chicago metropolitan area. With new transportation equipment still on the hard-to-get list, it is paramount to have the fewest possible public carriers out of circulation while tied up in the shop for repairs.

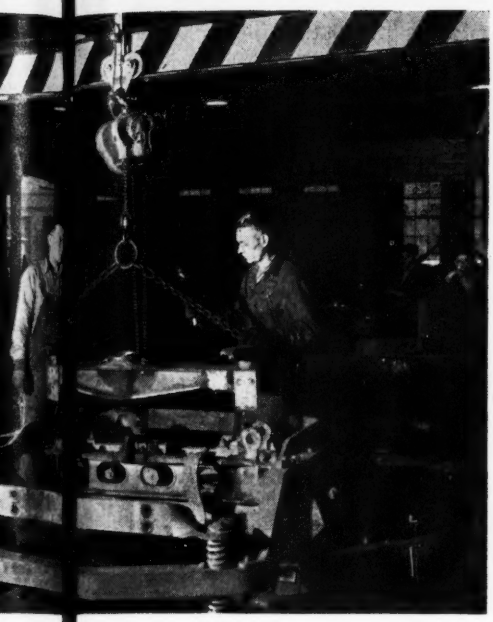
The exceptionally efficient general overhaul system of the Chicago Surface Lines is designed for maximum service to its patrons. The term "system" indicates that the method employed is anything but haphazard. It is performed according to the straight-line production principle, long envisioned by the company's General Superintendent of Shops S. D. Forsythe and his staff. His dream was realized by the use of overhead and on-the-floor handling devices that move a street car truck and its numerous components through the entire line in only 1½ hours.

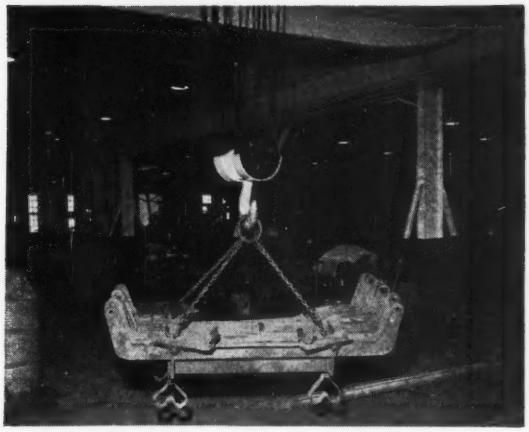
Through Laundry and Disassembly

The street car trucks, averaging about 10 feet in length and 14,000 pounds in weight, arrive by two-car work train at the north end of the truck shop, under the 50-foot span of a traveling bridge crane with a fixed cab. By use of a 4-point suspension chain sling with hooks, the crane deposits the trucks-to-be-repaired on a transverse track, about 40 feet long, which leads into the laundry. This "wash track" is indicated on the accompanying flow sheet. The laundry, as can be seen, is at the start of the straight-line repair line that extends the full length of the 350-foot-long bay. The latter is covered by three 10-ton cab-controlled bridge cranes. (One of these, at the far end of the bay, is used almost exclusively for components.)

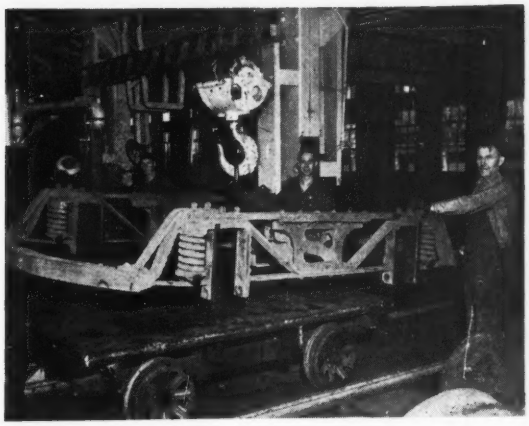
After a thorough washing, the cumbersome trucks are lifted by crane over the laundry partition and set on a rack at Position No. 1. From here the four-wheel units advance progressively in a straight line, first through disassembly and then through assembly stations, traveling from north to south. At the end they emerge completely reconditioned and tested, ready to be put into service. The exit of these units is via another track running at right angles to the repair line. This is also indicated on the flow sheet.

At Position No. 1, the motors





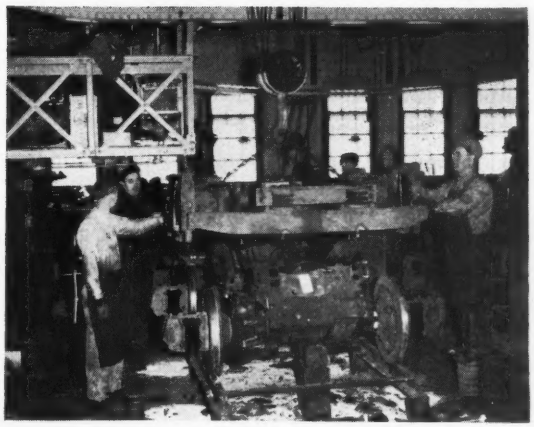
This 12-slot fixture was specially designed for handling equalizing bars in quantity.



Crane depositing truck frame on flanged-wheel car for movement to (or from) welding.

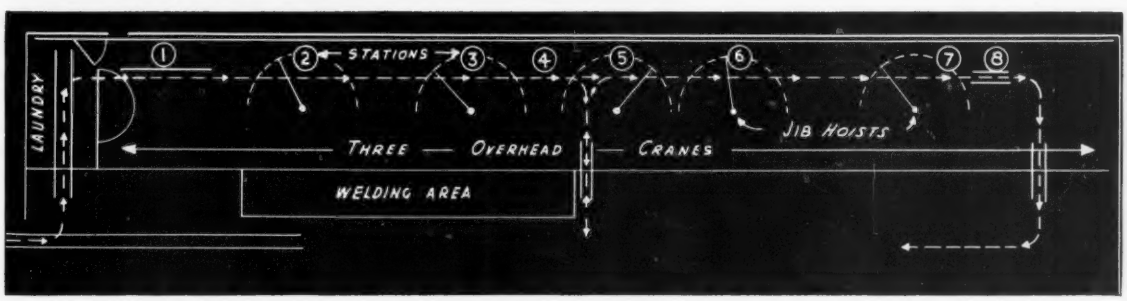
RPAIR LINE

and gear cases are removed, also such components as journal boxes, the frame, and the wheels. Incidentally, all bolts and nuts are removed with impact wrenches. Unless scrapped, the wheels are sent to the wheel lathe in the adjoining bay, which is covered by two 10-ton bridge cranes with fixed cabs. Placed on a transverse section of track by the "east" crane, the wheels are then picked up by the crane in the west bay for move-



Crane with fixed cab spotting completed frame on two-motor unit. There is no pit.

Schematic sketch of disassembly-assembly line on which complete overhaul job is done.



ment to the lathe (or, if to be scrapped, to the press). The motors and cases likewise travel west, but on a gravity roller conveyor, for complete overhaul in another section in the adjoining bay. Journal boxes and axle housings are placed on pallets for movement to a special laundry, and later reconditioning.

The truck has now been reduced to a frame, and the crane deposits the latter at Position No. 2 on a 3-foot-high horse. Here the brake rigging is dropped and the brake beam is disassembled, as well as castings and brake shoe heads. If OK for further use, items of this type are sent by the fork-truck-pallet method to welding stations in the west bay.

The crane next transfers the almost-bare frame to work station two of Position No. 2. Here, by use of hydraulic jacks and fixtures the bolster is depressed for removal of the spring plank pins. This done, the bolster, the two elliptical springs and the spring plank are removed by an electric jib hoist.

The introduction of the jib hoist at this station merits some elucidation, for the reason that hoist handling is an integral part of the over-all operation. Beginning at this part of Station No. 2 and spaced at intervals of 56 feet is a series of five hoists, installed on 16-foot-long jibs swinging in a 180-degree arc over the disassembly-assembly stations. As can be seen from one of the photos, these jibs are on posts to the west of the overhaul line.

The hoists are used for removal of any pieces weighing 500 pounds or under. Thus, with the hoists handling all of the lighter lifts, the two overhead bridge cranes are not tied up with many incidental tasks which can be handled more economically by the lighter equipment. Furthermore, none of the operations, either in disassembly or assembly, is kept waiting for crane service. It should be mentioned, also, that two jib hoists are installed on each of the five posts. The booms on the other side of the posts swing west over the adjoining production line where various processing and inspection operations are performed on components.

To come back to work station 2 of Position No. 2: Here the bol-

sters are also inspected and, if found OK, are then transferred by crane to Position No. 5 for later assembly.

By this time the pattern of the operation has become apparent. The main assembly, truck or frame, keeps advancing south in a straight line, while the disassembled components are routed west to their respective stations in the adjoining bay. Here, with certain exceptions, the bulk of the components during reconditioning travel in the same direction as the truck frames in the parallel line. Later their components reenter the general overhaul line at the precise points where they are reassembled to the trucks or frames.

The lifts are made with chain-type grabs, chain slings and hooks, some of which are shown in the accompanying photos. No below-the-hook device is left to guesswork or chance. A specific type of grab or sling best suited to the job is provided at each work station as part of standard procedure. It can be readily appreciated that this factor contributes to the safety and speed of the operations.

At Position No. 3, acetelyne welders burn the bolts off the equalizer bars and off the motor suspension bars. The motor suspension bars and the equalizer bars are then placed by jib hoist in a specially designed slotted rack, shown in one of the photos, which accommodates 12 bars. The loaded racks are moved by bridge crane to a flanged-wheel transfer car on a section of track running at right angles to the line. Thus moved to the parallel bay, the rack-loads are here picked up by another crane which transports them to nearby welding booths for processing.

Note the use of the 12-slotted racks or fixtures. They avoid piece-by-piece handling and the consequent loss of time and extra effort. This type of fixture was especially designed as a carrier for handling these components in quantity. Note, too, that the individual bars are loaded into the fixtures by hoist, thus enabling the cranes to give uninterrupted service to the line. In passing, it might also be mentioned that each station has its own impact wrench, also a tool cabinet providing orderly tool storage for each two-man team,

and, if required, a hydraulic jack.

At No. 3 Position, the disassembly is completed. This includes the inspection of different kinds of wear plates as well as of the frame for possible bends. While ingenious methods are involved in certain repair or reconditioning jobs, it is necessary to forego detailed descriptions of these in a material handling story of this kind.

Bringing the Parts Together

Position No. 4 is the first assembly station, where the frame is turned upside down by crane, and smaller components (such as wear plates) are added, provided the frames are found to be in sound condition. Ten feet ahead of this station is a side aisle with a track for a flanged-wheel transfer car, used for moving cracked frames to the welding booths in the adjoining bay. The welded frames are returned by the crane-and-car combination, in reverse order, for assembly to the east bay.

The OK or welded frames are next advanced to Station No. 5, where the bolsters are reassembled with wear plates and an addition for spring hangers. The crane handles these subassemblies to a zone storage area flanking the line on the west at this point. Storage of new and smaller parts is maintained on shelves in the aisle to the east of the line. Repairs of a minor nature are also made here. And the jib hoist is kept busy lifting and spotting such pieces as bolsters, elliptical springs, and spring planks.

At Position No. 6, the crane-and-hoist team adds further parts in the typical manner. Like Position No. 2, No. 6 has a second station. Here the frame is placed on 3-foot-high horses to facilitate the addition of the motor suspension bar. Between Positions No. 6 and 7, the new and/or reconditioned wheels are rolled up to the line. Other parts are similarly fed in from the adjoining bay at suitable points.

At Position No. 7 the motor, bearings, axle boxes, gear cases and wheels are assembled as one unit (while the frame is being worked on at the previous station), with the men performing their tasks at floor level in the line. This latter statement sounds matter-of-fact,

even commonplace, but it is actually highly significant when seen against the background of practices of past years.

For 30 years the trucks thus being overhauled straddled a pit. They still do in many other shops. Under these conditions, it was accepted practice for the men to attach such components as the bottom parts of the gear cases, the bearings and the turn buckles by manual effort, working from below. The man in the pit had to lift and hold the part in place while his team-mate worked above putting on the nuts. This meant "grunting effort" while literally working upside down. The situation was aggravated by the close quarters, where the wielding of cumbersome hand tools represented an additional difficulty, often resulting in cuts, bruises and other injuries. There's hardly a "pit man" who doesn't have scars as a reminder of such working conditions. It is therefore quite probable that the scars which General Superintendant of Shops S. D. Forsythe still has from his labors in the pits were a strong influence in his plan for a progressive overhaul line where "muscles of steel" would do all the heavy and dangerous work. The pits at the Chicago Surface Lines Shop have long since been filled in.

With powerful cranes to do the handling, the motor cases are turned upside down, and the men work right side up. All components are lifted into position from overhead and the men work with power tools, which could not be used in the pits because of awkward angles that were involved in working "up" from underneath.

Position No. 8 is the last one in the line. Here the complete motor assembly is placed on a 12-foot-long track, gauged to the proper distance for both motor assemblies. After the crane has placed each of the two-wheel units into position in the fixture, it brings over the completed frame from Position No. 6 and lowers it on the motor units. When the necessary belting has been done, the street car truck is again a complete assembly—and *completely* overhauled, ready for service.

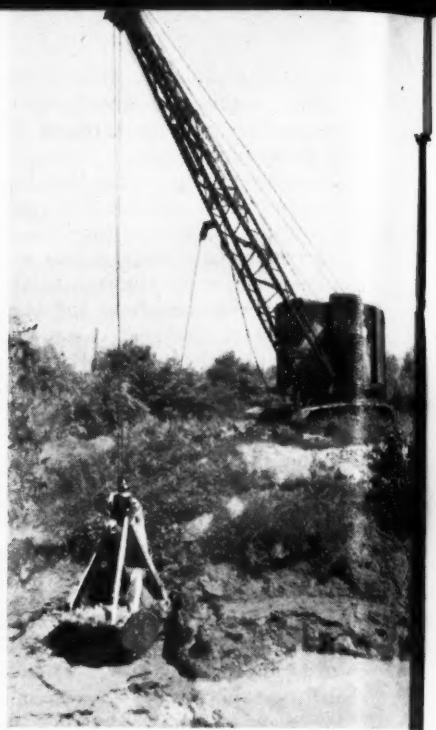
The reconditioned unit is then picked up by crane and placed on

(Turn to page 62)

VERSATILITY IN YARD OPERATIONS

MOBILE CRAWLER-MOUNTED CRANE

A saving of 43½ manhours in unloading a 40-ton rail car is one of the advantages gained by use of a crawler mounted crane at this nut manufacturer's plant. Other operating improvements are given.



Crane with clam bucket attachment removing waste lime water from settling basin, above.

Crane loading an industrial car with a bundle of hot rolled steel in the south yard.

Clam bucket lifting load of light scrap, another of many jobs done by crane.

VARIED use of a crawler-mounted crane at the Brightman Nut and Manufacturing Company, Sandusky, Ohio, has not only reduced the number of manhours consumed in loading and unloading steel stock and scrap, but has also proved of value in plant maintenance. The crane is of five-ton capacity, has a 30-foot boom, and is equipped with lights and an enclosed cab for night and all-weather operation. Two attachments, a hook and clam bucket, are the regular accessories used with this equipment. Setting poles, opening and closing ditches, loading and unloading machinery, plus the regular jobs keeps this crane busy during the nine-hour working day.

Separate receiving areas are used in order to expedite the handling of the two types of steel used. The crane, due to its mobility, is available in both yard areas as often as the need arises. For example, if a load of cold drawn steel arrives by truck at the north dock, the crane can be summoned and at work in a matter of minutes. All cold drawn steel is received at the north dock. It comes in bundles of from one to four tons, in length up to 12 feet, and in dimensions of ⅜ to 4⅜ inches. The steel is removed from the truck by means of a chain sling and spreader bar. The bundles of steel are unloaded on flanged-wheel transfer car that is spotted on the truck dock. This car is hooked up to a motorized truck and thus moved to the inside storage areas.

The hot rolled steel arrives on a rail spur located in the south yard area. This spur, some 300 feet long, enters the yard from the east. This L-shaped area is divided into two sections by the pickling building. The steel is stored in the western portion while part of the eastern half is used for scrap storage. This type stock is in lengths from 21 to 24 feet, and in bundles of one to four tons. The crawler crane unloads the bundles on an industrial car (this travels on 140 feet of

narrow gage track), or stacks them on dunnage in the storage yard. The time comparison between the crane operation and the previous method is as follows: Prior to the crane operation, it took six men up to eight hours to unload a 40-ton car. Today, it takes one and a half hours to unload the same capacity car. Time saved on each car in manhours—43½ hours.

Scrap Handling by Crane

As mentioned previously, the scrap is stored in a portion of the south yard. Two types of scrap are developed, heavy and light varieties. The greater proportion is of the light variety and is shipped by rail. The heavy type is shipped by both rail and highway truck from the same area. In the handling of scrap, as in the handling of new stock, the crane can be brought into use in a few minutes' time. When a car or truck is to be loaded, (the company ships scrap about once a week) a clam bucket is attached to the crane. This operation takes one man, the crane operator, 1½ hours to completely load a 70-ton car. This job when performed by manual labor often took four men six to eight hours. In addition to the 30½ man hours saved, the mobility of the equipment has also eliminated the necessity for moving rail cars once they are spotted.

One maintenance operation of the equipment is to remove waste lime water and acid from two settling basins. These basins have a surface area of approximately 3000 square feet and are located just west of the steel storage yard. Formerly, the sludge was removed a little at a time by men equipped with boots and hose. The basins were kept shallow and but a few inches of sludge were allowed to accumulate, necessitating frequent cleaning. Now they are cleaned about once a year, in which time from six to eight feet of sludge has been precipitated. For cleaning, the bucket is attached to the crane, the machine taken to the bank of the basins and the year's accumulation of approximately 800 cubic yards is removed in less than four hours by the crane operator alone. Here, again, the versatile crane has eliminated the frequent shifting of

man-power from productive work to non-productive maintenance and has changed this cleaning operation from a monthly to a once-a-year task.

This company, currently engaged in a construction and plant improvement program, also uses the crane for hoisting ventilators to roofs, unloading and placing structural steel, setting poles, digging ditches and other building tasks.

The use of the crawler-mounted crane is not only saving many man-hours, but has also substantially reduced rail demurrage charges and truck waiting time.

HANDY FOR AWKWARD ITEMS

THE handling of awkward sub-assemblies has been simplified by use of tubular type tiering racks at this farm implement plant. These racks are

seven feet wide and 3½ feet deep and can be used with or without side slats, depending on the job. The 4,000-pound capacity fork truck shown is about to stack the sub-assemblies in the finished material warehouse. Note the variety of items handled in this type of rack.—Courtesy, International Harvester Co., East Moline Works.

Conveyor Speeds Lamp Handling

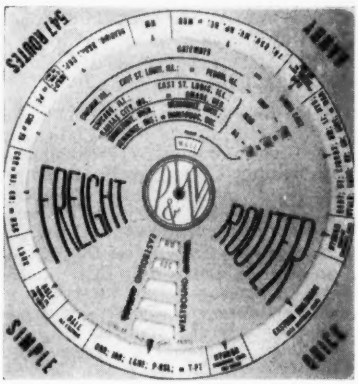
FACED with an unprecedented demand for electric lamps, Westinghouse has acquired sites for two new plants and has increased production at the four existing plants to 53 per cent above the 1941 rate. To expedite the greater output at Bloomfield, N. J., a continuous conveyor was built. Winding 1450 feet through three buildings, the conveyor is equipped with sidings, such as the one shown at the lower right where special orders are packed. The conveyor originates on the manufacturing floor, ferries the cartoned lamps to a floor below for labeling, inspection and stapling

and carries them along to the shipping platforms or sidings serving warehouse

areas. Forty cartons a minute can move past a given point.

TRAFFIC ROUTER

THE CARD pictured above, through manipulation of its dial, indicates in the opening just how freight shipments may be routed by rail between the east and the west. The device,



which is copyrighted, was designed by Edward E. Hopper, assistant to the president of The Pittsburgh & West Virginia Railway Company. It gives 547 routes over Eastern railroads in connection with the P. & W. V., from and to gateways with Western railroads. Traffic men may secure copies by writing Room 411, Wabash Building, Pittsburgh 22, Pa.

RAPIDS-STANDARD PROFIT-SHARING SECURITY PROGRAM

A PROFIT sharing plan in which the company will contribute from 10 to 25 per cent of yearly profits to a trust fund to provide future welfare and security to its members without cost to them was announced by Lloyd C. Backart, president and sales manager of The Rapids-Standard Company, Inc., Grand Rapids, Michigan.

The new plan will provide life insurance and annuity funds to supplement regular Social Security benefits for members after retirement at 65, death benefits before retirement and

payments in the event of disability. All company members are eligible after three years' service.

Rapids-Standard already has in operation regular monthly bonus and Christmas bonus plans in addition to an insurance and hospitalization plan to which the company and members contribute regularly.

Individual company workers participating in the new plan will not contribute other than through cooperation and production efficiency, which will produce profits available for the plan.

Total expense of the plan will be borne by the company. The trust fund to which profits will be transferred will be administered by a board of five trustees composed of Lloyd C. Backart, James R. Sebastian and Roger S. Calvert, from management, and Russell Inwood and Albert Gerritsen, from prodction and engineering departments.

For each year of service and for each $100 earned yearly, a participating member will receive one share in the yearly profits transferred to the trust fund.

According to Backart, the value of such shares will be credited to each member's retirement account. One third of this yearly addition will be used by the trustees to purchase life insurance policies for participants, and the remaining amount will be invested in government securities.

If lack of company profits during any year prevents setting aside funds for the trust, already invested funds will be used to keep the members' insurance policies in force, Backart explained.

When a Rapids-Standard member reaches the age of 65, invested funds which will have accrued to his account will be used either to purchase an annuity policy paying a monthly income, or will be paid to the retiring member in installments.

Modern Paper Mill Handling

By MAXWELL A. GOODWIN
Clark Tructractor Division

(From a paper delivered before American Pulp and Paper Mill Superintendents Association.)

The steps to be taken to reduce handling costs are relatively simple. First, study the flow of material through the plant. Second, analyze existing handling methods. Third, study other methods available. Fourth, apply the most suitable improved method.

In paper mill handling, one of the big tonnage items is pulp. This product in bales readily adapts itself to being handled by a fork lift truck equipped with tapered smooth forks, which may be forced under the load permitting it to be lifted and discharged at will without any skids or pallets beneath the load. Many paper mills are using this method now on their receiving platforms for unloading baled pulp from cars, discharging it on scales, picking it up again and discharging it into storage or to the beginning of manufacturing processes. When large open bay storage areas are equipped with overhead cranes, the fork lift truck readily feeds bales to, and removes them from, the range of the crane.

In some instances, pulp is being handled on pallets and with a standard fork lift truck, where the steps are the same as outlined for the tapered fork operation, except that the material stays on a pallet and is tiered into and out of storage in that manner. Other products handled on pallets include bagged materials such as clay and chemicals. Bulk materials such as chemicals and salt may also be handled with a fork lift truck equipped with a removable scoop attachment. Where long hauls are involved, palletized loads should be placed on tractor trailer trains at one end and removed from the trailers at the other end with a fork lift truck which does not travel the long distance between points of activity. Fork lift trucks, in addition, may be equipped with roll handling scoops and rotating devices to pick up rolls of paper in any position and rotating 90 degrees for storage or shipment in another position.

Let me give several specific examples of savings made in handling at paper mills.

1. In one instance the commodity handled was bagged goods. These arrived in freight cars and were unloaded at a cost of $1.10 a ton. When this same operation was adapted to palletizing at the receiving dock, the cost per ton dropped to .39, or a saving of .71 per ton through the use of a fork lift truck.

2. Another example is a general

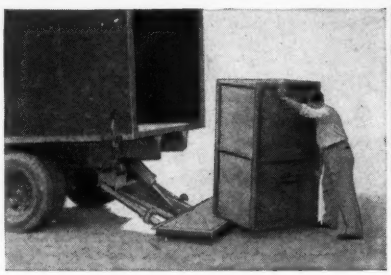
receiving and shipping dock where the crew was reduced from nine men to three by the use of one fork lift truck, releasing six men for more important work.

3. In one instance pulp was unloaded from cars using a crew of six men and requiring approximately four hours or a total of 24 man hours per car. With one fork lift truck and two men the same material was unloaded in less than two hours or the equivalent of six man hours. The resulting saving was 18 man hours per car.

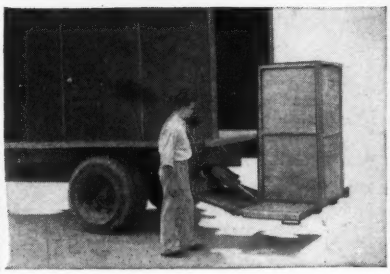
4. Another example was handling rolls of paper into cars. The hand method took six men from four to five hours, or approximately 24 man hours per car. With a fork lift truck and two men the operation took from 45 minutes to one and a half hours, or approximately four man hours total, with a saving of 20 man hours per car.

The possibilities are before us, but someone must take the initiative in changing methods. It is my opinion that purchasing agents and superintendents must take part in this material handling revolution. When placing orders for raw material, it's a good idea to explore how overall initial costs can be reduced by specifying in what form and manner each item is to be packaged and shipped, in order to permit most efficient handling and storage as well as to reduce damage. A real responsibility rests with buyers to take the lead in achieving these benefits for industry. It is a challenge they have not yet fully accepted.

Sales and distribution organizations



PLACING LOAD ON GATE



GATE LIFTS LOAD

IN OR OUT OF TRUCK—EASILY

are pressing for action on better material handling in order to improve their competitive selling price. Such groups will assist buyers and production management in coordinating the efficient flow of material through distribution. Particularly at this time when we are moving from a seller's to a buyer's market, purchasing agents may substantially increase profits or reduce costs by diligently applying material handling information already available.

Apparently one of the reasons for slow progress of improved handling methods is a failure to grasp what a large percentage of wages goes for material handling. Current estimates are that an average of twenty per cent of all labor costs are paid for material handling. Improved methods not only result in reducing labor costs but also result in the following:

1. Increased production per employee.
2. Reduced inventories.
3. Improved utilization of existing manufacturing and storage space.
4. Decreased damage to material.

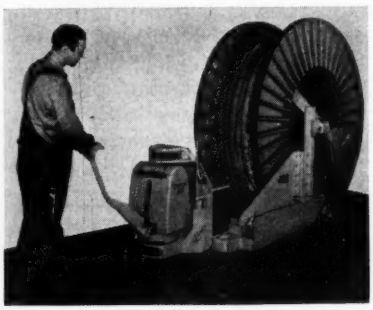
Alert management today is establishing centralized material handling responsibility and authority in their organization. This solution should be given consideration, and when a man is appointed he should be given plenty of authority to coordinate the various departments involved.

$1,500 in prize money. You may win one of the awards offered in the FLOW contest. See page eight.

For additional information on these products, write Dept. 5, Flow Magazine, 1240 Ontario St., Cleveland 13.

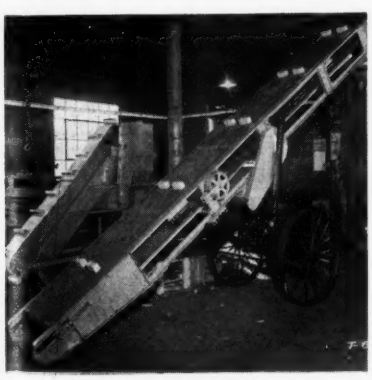
CABLE HANDLING TRUCK

NP111—An electric truck designed specifically for moving, storing, winding and unwinding cable wire or hose, is manufactured by the Automatic Transportation Company. Constructed to handle up to 6000-pound loads of any commodity wound on spools from three to seven feet in diameter and up to 33 inches in width. Features claimed by the company are: adjustable hooks for various size reels and mounted locking gear racks. The truck is less than seven feet long, and operates from a standard 11-plate battery.



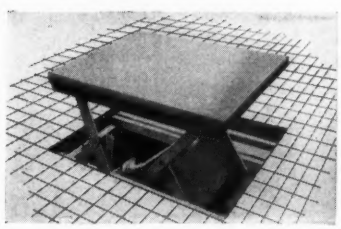
ADJUSTABLE, PORTABLE CONVEYOR

NP112—A new type of under-carriage for portable conveyors is designed to provide a maximum and minimum height. This unit is designed and produced by the Trowbridge Conveyor Company. Minimum height for a 20-foot conveyor is five feet and maximum is 12 feet. The company states that this carriage is available on trough belt, flat belt and freight conveyors.



HYDRAULIC LEVELING PLATFORM

NP113—Designed for level feeding of sheets to presses, shears and hammers, this equipment is being marketed by the General Sales and Engineering Company. The unit can be placed adjacent to the equipment it is to serve, the release states. The platform it actuated by hydraulic pressure and a valve in the line controls raising and lowering. Capacity is limited to 2000 pounds, elevation is 30 inches above floor, and safety devices are said to prevent overloading and overtraveling. The company states that the unit is simple to install.



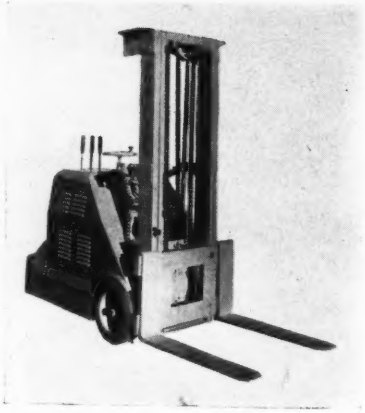
BUCKET CONVEYOR

NP114—Conveyors for Industry announces a bucket-type conveyor

to meet the needs of boiler room and green house operation. Coal, sand, and fertilizer are some of the materials handled by the equipment. The company states that the equipment can be furnished with floating wall sections and special belt lengths that can raise the discharge height up to 50 feet. Capacity of this self powered bucket-type conveyor is said to be 40 tons per hour.

3000-POUND LIFT TRUCK

NP115—The General Equipment Company announces a new Model F Mobilift with a rated capacity of 3000 pounds on a 15-inch load center. The manufacturer claims that the balancing factor enables this truck to handle heavier loads of larger or odd-shaped materials. The truck weighs approximately 4450 pounds and is equipped with a 20 HP three-cylinder, air-cooled engine. The release states that the truck requires no gear shifting and has an overall turning radius of only 61 inches for easy maneuverability. Other features claimed are:



roller chain lift, lifting heights of 68 or 108 inches (underside of load), high speed, and light-weight construction.

STANDARD UTILITY RACK

NP116—A utility rack on wheels is now being manufactured by the Palmer-Shile Company. The rack is constructed of steel and welded construction with two, three or four shelf units. Standard dimensions are 30″ wide, 48″ high, 54″ long overall, and 12″ clearance on the

four shelf model. The release states that the rack can be used to handle parts and small items on assembly lines.

PNEUMATIC-TIRED FORK TRUCK

NP117—This truck is intended for inter-plant movement of material, especially where the surface of the floor is uneven, rough or slippery, according to the release of the Clark Equipment Company. The pneumatic-tired, gas-powered fork truck has a carrying capacity of 2,000 pounds. Its suspended-frame

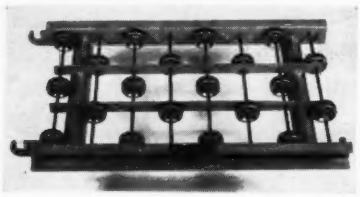
construction and the pivoted steering axle mounting are said to give

the unit stability and effective traction at all times. Standard models have tiering heights of 72 and 118"; optional uprights can be furnished to provide heights of 60 to 144 inches.

GRAVITY WHEEL CONVEYOR

NP118—A line of standard size gravity wheel conveyors that is claimed to be capable of handling 90 per cent of all standard box,

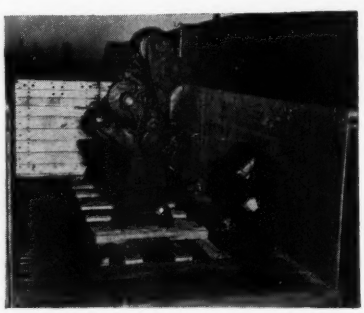
carton and case sizes is being produced by the Sage Equipment



Company. The equipment is lightweight, welded-steel construction, gives the five or 10-foot sections easy mobility, according to the company's release. Sections are said to be readily hooked together without the use of tools. In addition to the standard model, models of 12″ and 18″ are also being manufactured.

NAILABLE STEEL FLOORING

NP119—A nailable steel floor for railway freight cars, trucks, and trailers has been developed by the Great Lakes Steel Corporation, a unit of National Steel Corporation. The floor consists of steel channels between which ordinary nails may be driven. Nails driven into grooves formed by parallel flanges of curved steel are deformed and held more securely in place than when driven into wood, the company claims. Hauling equipment fitted with such floors thus can handle rough heavy freight, finished products, or bulk materials, it is claimed. At the present time, the release states, open top cars are of two types with either wood or steel floors, whereas all box cars have wood floors. The new steel flooring will make diversified use of all cars possible. Other advantages claimed are: increased



strength and resistance to impact; freedom from splintering and obstructions contributing to damage of goods in transit; non-absorbency of liquids; and ease of cleaning.

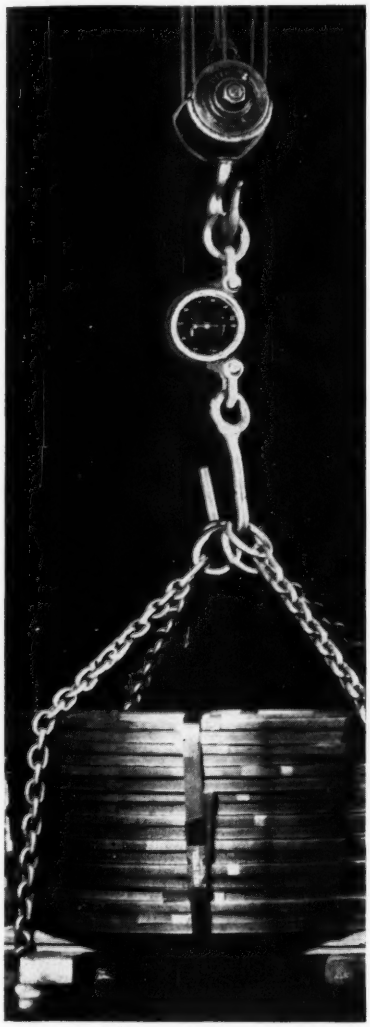
REVOLVING CARRIAGE ACCESSORY

NP120—The Towmotor Corporation announces a revolving carriage accessory which can be attached to

a fork lift truck when production calls for the transportation of solid, liquid, or granular bulk material. The carriage is said to revolve in a 360-degree circle in either direction. Power is supplied by a hydraulic motor through a chain drive. Installation of the revolving table does not affect the normal operation of the fork lift truck.

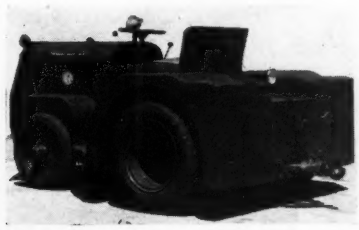
DYNAMOMETER

NP121—A portable dynamometer scale said to eliminate double handling in inventory is being produced by the W. C. Dillon and Co., Inc. The device fits the crane or hoist hook and can be read instantaneously in pounds on the face of the dial. Loads can be lifted right at the stock pile and replaced without further handling, according to the release. The scales are available in 0-500, to 0-20,000 pound ranges, and the models are the same size and weight regardless of capacity.



HEAVY DUTY TRACTOR

NP122—A new line of extra heavy duty tractors is being marketed by the W. F. Hebard & Co. Identified as the series "H" tractor, the tractor is used for hauling large planes, lumber loads, and steel beams. A drawbar effort of from 7500 pounds to 12,000 pounds give this series a towing capacity of from 150 to 240 tons. The pneumatic drive tires and heavy cast rear fenders assures traction in all weather, the release states.



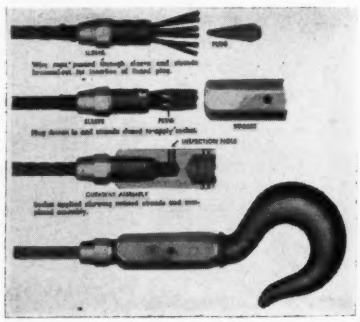
ALL-ALUMINUM DRUM

NP123—Handling and shipping of chemical, oils and pharmaceuticals at reduced costs is promised with a new 30-gallon all-aluminum drum developed by the Reynolds Metals Company. According to the release, aluminum does not react with most chemicals. This means that the container is immune from its

contents and also that the contents are not affected by the container. The weight of the container is 34 pounds; height 30½" high; overall diameter, 21", including the reinforcing rings.

HOOK-END FITTING

NP124—Promise of greater safety is offered in this hook-end fitting

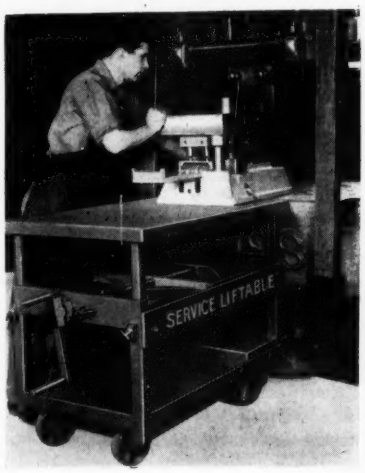


by the Electroline Company. On winches, cranes, derricks and draw works, hooks can be secured to the

wire rope ends by means of a patented connector which is built as an integral part of the hook. The manufacturer claims that the assembly will stay on indefinitely if desired. An inspection hole allows checking and a vibration damping device is claimed to prolong the life of the wire rope.

LIFT TABLE

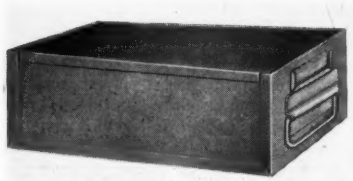
NP125—Handling of dies is said to be facilitated by this Service Lifttable of recent design. A product of



the Service Caster and Truck Corp., the table can be used as a work bench, truck and lifter, according to the release. Lowered, the top is 28″ from the floor; raised, 42″. The top measures 26 by 43 inches. It is of all welded construction with chain and screw lifting mechanism.

STEEL SHELF BOXES

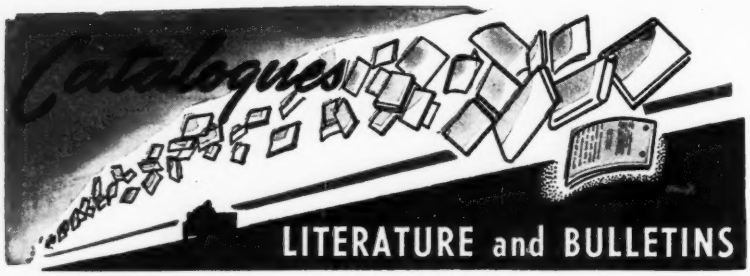
NP126—Bay Inc. offers steel shelf boxes for storage of bolts, nuts, screws or small bulk parts in the stockroom, assembly department, show and sales rooms. Plain, straight sides allow compact arrangement of boxes and maximum



usage of small storage space. Because of their smooth surface, these boxes are said not to stick to the shelf or to each other. Label holders on the front of each box make identification of contents easy, speeding handling of materials. They are available in standard gauges and sizes to fit all standard sizes of shelving.

CHAINLESS-OVERHEAD CONVEYOR

NP127—Designed by Taylor and Gaskin, Inc., this new type overhead conveyor is said to eliminate chains, sprockets, traction wheels and take-up. The basic feature of this conveyor is a four-wheel trolley unit, with each of the four wheels on the same plane. The track consists of parallel standard angles, with additional overhead and side angle track around horizontal and vertical curves. The entire system is supported from overhead with "C" type brackets on five-foot centers. Rods connecting the trolley are anchored into the housing of the trolley unit by a ball and socket. The connecting rods telescope, ½ inch at each end. The release states that the conveyor is adaptable to extremely heavy loads.



The publications featured on these pages were written by experts. They are FREE publications. To obtain these use the postcard bound into this issue.

361—Heavy Duty Engines . . . The Buda Company offers a new 16-page, three color booklet which describes and illustrates four heavy-duty Diesel engines ranging in size from 180 to 300 H.P. The publication gives construction features, data regarding combustion, installation and design, and contains many illustrations of installations on all types of haulage equipment.

362—Paper Handling Accessories . . . Two catalog sheets have been released by the H. Robert Slater Co. The first one deals with a paper roll truck. This unit has a capacity of 5000 pounds and is of all-steel, arc-welded construction. The second sheet covers a paper prying paddle for shifting rolls of paper. Two models are illustrated, together with pertinent data. The one type is for rolls stored horizontally and the other is for rolls stored closely on end.

363—Battery Charger . . . P. R. Mallory & Co., Inc., has prepared a new specification sheet on the "Rectotruck" battery charger, giving complete information on construction, performance and application. A detailed chart on the back cover shows the model charger required for different types of batteries.

364—Building Maintenance Guide . . . "Over the Rough Spots" is the title of a publication released by the Stonhard Company. It contains information on floors, walls, foundations, roofs and the answers to many problems occurring in maintenance of industrial buildings. Several pages deal with special problems of mines, railroads, and water works.

365—Overhead and Jib Cranes . . . Two circulars on Tramrail Jib and Overhead Cranes have been published by the Chicago Tramrail Company. Twelve models of overhead cranes are illustrated with large photographs. Typical crane installations are also amply described. Drawing and photos are used to describe seven models of jib cranes. Charts show capacities.

366—Steel Strapping . . . A picture story on the use of steel strapping by the lumber industry has been released by the Acme Steel Company. How handling time and costs have been reduced with unit loads of lumber and lumber products is told in a series of photographs. The last page is devoted to carload bracing and strapping accessories.

OPPORTUNITIES

Men wanted Jobs wanted Lines available

Rates: for "Positions Wanted" $3.50 minimum, limit 25 words. For all other classifications $3.50 minimum for 25 words, each additional word 10c; boldface type or all capitals, $6.00 minimum for 25 words, each additional word 15c; limit 50 words. Box addresses count as five words. All insertions are payable in advance.

POSITION WANTED

Established industrial engineer with downtown Pittsburgh, Pa. office interested in handling material handling equipment and similar commodities for western Penna. and eastern Ohio markets. Box 9147, Flow.

REPRESENTATIVES WANTED

AGENTS WANTED FOR
STAIR-LIFT

Replaces existing stairway. Conveys materials on lower landing which rides on channel sides to next floor. Equipped with highest quality rollers. Complete safety devices-foolproof. Numerous installations. All users enthusiastic. Selling price under $1000. Write for full information and our profitable sales proposition.

FIRESTONE STAIR-LIFT
1706 N. Pascal St., St. Paul 8, Minn.

Choice territories still available for manufacturer's representatives to handle lightweight magnesium hand trucks. Write Marketing Associates, 904 Lapeer, Saginaw, Michigan.

REPRESENTATIVES WANTED

Representatives wanted for distribution of a complete line of rubber tire wheels and hand trucks. Nationally known brand. Write for full information and our profitable sales proposition. P.O. Box 432, Milw., Dept. F.

Well-established manufacturer wants representatives to handle line of barrel trucks and stands on commission basis. Must be active distributor. Box 9347, Flow.

POSITION AVAILABLE

Southwestern Ohio exclusive factory distributor for national known power and hand wheeled materials handling equipment has opportunity for equipment sales engineer in Dayton or Columbus area. Replies confidential. Box 9447, Flow.

FOR SALE

For Sale—Approximately five hundred (500) wheel trucks, constructed out of hard wood, 3′ x 6′, having four steel ball-bearing casters 4″ high. We are conveyerizing our plant and would like to dispose of these trucks. They are in excellent condition.

Kraft Corrugated Containers, Inc.
Constable Hook, Foot of East 22nd St.,
Bayonne, New Jersey. Mr. S. B. Simon

FOR SALE

We will make attractive prices, f.o.b. Cleveland, on the following excess material-handling equipment: one 26½″ x 34″ Upender Scoop for Towmotor, with full apron and blades to handle newspaper rolls or similar merchandise 36″ to 39″ in diameter; one Shaw Box Crane, half-ton capacity with 220 V. AC motor; two 18″ flat Belt Conveyers, one 65′ long, other 30′, both with 5-ply rubber-and-canvas belts, larger conveyer driven by 3 h.p. AC motor, smaller by 2 h.p. AC. motor. Shopping News, 5309 Hamilton Ave., Cleveland 14, Ohio.

LINES WANTED

Industrial Engineering Co., located in northern Indiana, interested in handling material handling equipment and other commodities of similar nature. Box 8147, FLOW.

Export Sales

Export Department of New York firm specializing in sale of Materials Handling Equipment wants additional lines. Will act as Export Department for manufacturers. Box 8347, Flow.

Established and active manufacturer and distributor of material handling equipment desires more lines for distribution in Nebraska and surrounding territory. Particularly interested in hydraulic lifts and jacks. Box 9247, Flow.

367—Conveyors . . . An eight-page, two-color brochure by the Trowbridge Company shows some 20 conveyors and their applications. Flat belt, horizontal, heavy duty, drag, apron and special conveyors are illustrated. Dimensions and other pertinent data are also given on each model.

368—Chainless Overhead Conveyor . . . Facts about "Alltrack" Chainless Overhead Conveyors are contained in a 12-page booklet published by the manufacturer, Taylor and Gaskin, Inc. The basic feature of this unit is a four-wheel trolley unit, with each of the four wheels in the same plane. The trolley units are usually spaced on 24" centers and connected with rods instead of chain to make an endless conveyor. Blueprints for standard trackage and curves and typical layouts are a feature of the folder.

369—Fork Truck . . . Models of 1000 and 2000 pound capacities are discusssed on the four pages of a brochure by the Crescent Truck Company. Specifications on hoisting speeds, brakes, tires, hoist and tilt, controls and travel speeds are shown on the last page.

370—Elevating Platform . . . Two folders in file form have been released by the Rotary Lift Company. One covers the application of lift platforms to industry. This one has engineering data and installation views on many types of lift platforms. Also shown are safety devices for use with this type of equipment. The second folder takes up the use of freight and passenger elevators that serve two, three and four stories. An architect's preliminary layout sheet is included in the data.

PROGRESSIVE REPAIR LINE . . .
(Continued from page 45)

the out-bound east-and-west section of track for further handling by crane in the adjoining bay. The latter transports the finished trucks north through the bay to the work train, which hauls the units away (through the same door by which they entered) for distribution to the various car houses.

Systematic Overhaul, Handling

The elapsed time of an hour and a half for the complete reconditioning job is a feat in itself, but is actually only one of a number of important benefits. The complete overhaul of the trucks in the shop of the Chicago Surface Lines represents a break with the traditional method of piecemeal repairs made only when an actual breakdown occurred. With the piecemeal repair method, only the broken part is repaired or replaced, and the truck sent out again. If a hidden defective part is overlooked, the same truck could be back again in the shop the week or the month following. The present systematic overhaul of every truck, on the other hand, assures that a reconditioned unit will be serviceable (according to estimates) for two years of service (except for change of wheels due to flange wear). Moreover, the one-time general overhaul is far more economical than the previous repair-what-is-broken method. Too, with a planned material handling system such as the one used, the operators do not strain muscles or waste time with lifting tasks. All this adds up to less time for a minimum percentage of equipment tied up in the shop and, therefore, maximum service to the Chicago Community.

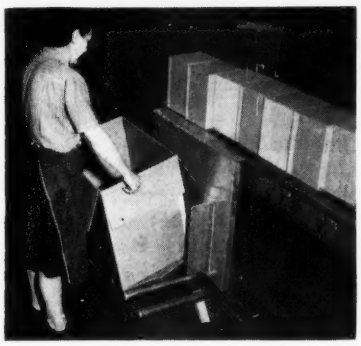
OCTOBER ISSUE BRIEFS

Innovations in assembly and (floating) storage practices, told in a vivid on-the-scene report about an automobile assembly plant . . . The trend toward the segregation of warehousing from manufacturing is fully detailed in a story about recent developments at the plant of a leading cereal food processor . . . And other articles of practical value.

PACKAGING MECHANICS . . .

(Continued from page 33)

the gravity conveyor. Some means of lifting the product was required. This was accomplished by use of an electric eye and air cylinder. A



This section of gravity conveyor raises when gross container breaks photo-electric beam.

section of gravity conveyor was mounted (at the same pitch as the balance of the conveyor) on an air cylinder at the foot of the top-and-bottom gluer. When a gross carton breaks the beam, the section of conveyor rises to the same level as the glue machine belt timer. The containers are then carried through the gluer (this one is 13½ feet long). A mechanical counter at the end of the packaging line tallies the number of gross sent to the shipping department. The roller conveyor is 10 inches above the floor level at this point. As the cartons drop from the line, an angle-iron-constructed trough tumbles them into a chute. This trough was constructed after many methods were tried and is necessary in order to have the cartons follow in the correct position.

This packaging setup, (except for the automatic cartoning) is used to package the two main line wicks. Maximum use is made of this packaging layout. For instance, when one production line is down for maintenance or cleaning purposes, it is used for wicks from another line.

Are you trying for part of the $1,500 award money, offered by FLOW Magazine in the current contest on cost-reducing material handling projects? See the full-page announcement on page 8. Read the simple rules, then send for your entry blank. Your paper may be a winner.

MOVING MATERIALS IN R. R. SUPPLY DEPOT . . .

(Continued from page 26)

ceived special consideration in the analysis of the material handling setup. A special rack, called an A-rack because of its shape, was made by welding light rails and angles together to form a sturdy support against which the yokes were stacked. To the top of the "A", a short metal strip was fastened holding stamped identification plates indicating the size and style of the yokes directly below. Since the metal is exposed to the weather, and the nomenclature used occupies only a few inches of space, this method of cataloging has been found quite effective.

Another illustration of the utilization of reclaimed materials from dismantled cars for material handling devices: a car which has only the floor and trucks left is used as a cross-over bridge from one loading dock to another. Since the docks are of car floor height, power trucks could previously pass over from one side to the other side only when a car was being loaded or unloaded. Scrapped car sides hinged to the car cover the gaps between the "bridge" car and the docks, and also on the floor of the car to form a solid steel bed inasmuch as the floor of the old car is usually worn and uneven. This "short-cut" method has saved miles of unnecessary truck travel.

Hoist for Waste Drums

The huge quantities of waste (packing used in journal boxes) required by the railroad makes the salvaging of it a profitable venture. The oil-permeated waste arrives in 50-gallon drums. The oil is removed centrifugally and fresh oil is added to the clean waste, which is again shipped out in drums or stored. A monorail hoist is positioned in the areaway between the storehouse and the reconditioning building, and the overhead track extends to a point opposite the box car doors. As shown in one of the photos, the drums are hoisted and moved to the reconditioning room without manual lifting. Since this is a large-volume operation, the hoist soon paid for itself. As previously indicated, these drums

are handled on 48" x 48" pallets in the storage operation.

Rail joints, about four feet long, are picked up and moved by fork truck and positioned on supports which hold them several inches off the ground. These supports are made from three rails spaced on approximately two-foot centers and held together by one-inch steel rods a little over four feet long. The rods are threaded on the end and bolts retain the rails from slipping out of line.

With the constant inbound and outbound handling of thousands of items of railroad material, methods are under continuous analysis, which is another way of saying that the ultimate is never reached so far as the movement of materials is concerned. With this in mind, they are constantly analyzing their methods of handling. In this way, they keep striving toward the most efficient material handling methods.

(See the September 1946 article, "Erie Railroad's Scrap Reclamation Project", which illustrates top-notch handling as well as reclamation practices—Ed.)

MODERN TANNERY PRACTICES . . .

(Continued from page 21)

skins, which are laid up on three skid platforms according to size. The company has installed mechanical counters, easily reached by the operators, in each of several stations. As can be seen from one of the photos, the six counters at each work station are arranged in three pairs, permitting the operator to use the one nearest to him as he moves back and forth among the three skid platforms. After he has laid up a skin, he merely reaches out and pulls the handle of the counter, registering the skin. When the required total has been reached, the pack is moved out by hydraulic hand lift truck. The counters are then reset, ready for the next pack.

Before the counters were in use, each of the hundreds of skins had to be rehandled as they were counted manually upon completion of the pack. Thus the use of the counters has reduced the handling of the skins by 50 per cent, and each man saves hours of produc-

tion time daily.

Other advantages have likewise accrued. There is an important convenience factor, because the total can simply be read off (without requiring memory work on the part of the operator). Another big item is that the possibility of error is virtually eliminated.

Ohio Leather has applied counters to other operations. A counter attached to a stand, for example, is used in unloading bundles of skins from freight cars. This stand is set up near the doorway. As each man deposits the bundle on the truck platform outside the car, he depresses the handle of the counter. The total registered is a correct tally when the job has been completed.

Another application is in the trimming department, where excess material from the edges of the skins is removed by use of knives. These counters are installed similarly to those used in the packing stations. They are attached to boards nailed to the ends of pieces of two-by-four lumber which are affixed perpendicularly to the ceiling beams. As each operator deposits a trimmed skin on a skid, he pulls the handle of a counter (in his line of motion) as he reaches for the next skin. Again, rehandling and manual counting are avoided upon completion of the individual loads.

Powered Trucks Widely Used

A fleet of powered trucks (of two types) is used extensively for moving work-in-process and supplies. Motorized platform trucks transport a sizable tonnage of material in yard and in-plant operations. A large volume of supplies is moved in this manner between storage areas and the point of use. Many of these products are in 55-gallon drums, and thus manual tussling of these heavy containers has been reduced to a minimum. This has contributed to greater plant safety and made workers available for more important production jobs requiring higher skills. The time factor is of importance here. The trucks, which are pneumatic-tired, transport the loads quickly over extensive yard areas and within buildings, involving hauls of considerable length. Hours of time that were consumed in man-haul-

age jobs, with the attendant physical exertion, is no longer a factor. Between certain departments, these trucks also haul skidded loads of leather in process, as shown in one of the photos. In this case too, transporting jobs are now completed in a matter of minutes that previously required hours.

Part of the industrial truck fleet consists of five platform hand trucks, which are used chiefly for moving all leather in process after tanning. Loads of this product are constantly being moved between such operations as shaving, coloring, toggling and finishing. While individual skins must be handled in the processing operations, economical handling in quantity is thus made possible in moving the loads between the operations concerned. Powered for travel, these trucks are an aid in the rapid transfer of loads from department to department, and the job is made an easy one because the operators merely push the control buttons on the handles.

These examples indicate the trend toward modern handling in this leading tannery. Methods are constantly being scrutinized for possible economies obtainable from improved handling. While a new project is now nearing completion for the bulk handling of tanning acids (via pressure flow) from a main storage tank to the tanning drums, other operations are being studied at the same time for later improvement. Among these projects is the handling of such by-products as hair (in the beam house), and for the loading of fleshings and cheekings into outbound vehicles. Some of these latter operations may involve layout changes to permit the effective application of modern handling facilities.

Wherever savings can be effected, the changes will be made as soon as the manpower and material situation permits. The management is well aware of the fact that the re-handling involved in we-have-always-done-it-this-way methods is costly; that the savings realized from properly engineered flow methods pay for the equipment, which in turn also contributes to safety, speed, good housekeeping and, ultimately, better service to customers.

ON THE PALLET . . .

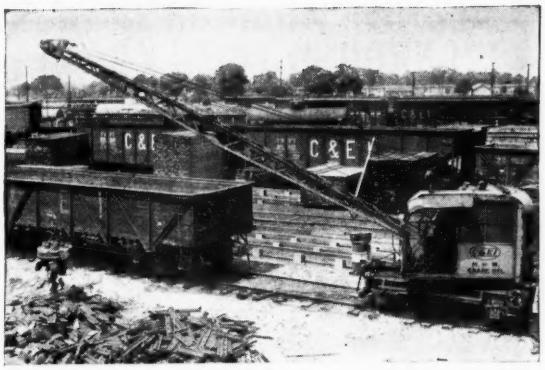
(Continued from page 34)

packs, which have six safety slogans. Example. "Careless—Jobless."

Ager found that the average person cannot recall the advertising message or advertiser's name on the match packs he carries. He decided that a contest was the best device to drive home the message. Notices in the chatty, hand written, style of the Company were posted around the plant to announce the contest along with a safety message. Employees were asked to write their names on the packs, when empty, and deposit them in a box from which a drawing for merchandise prizes would be made at the end of the period. To acquaint employees with the plant safety men, they were given the matches to pass out.

To encourage people to carry the Safety Packs, silver dollars were given to employees who produced one of the packs when asked for a light. Phenomenal results from the match pack campaign wasn't expected, but Ager believes that the indirect results will be worth while.

A COURSE in "Material Handling," the first of its kind to be included on college curricula in this area, will be offered by the Fenn College Technical Institute, Cleveland, with the beginning of the fall quarter, it was announced today by Institute Director Nicholas R. Rimboi. *(See page 71.)*



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BURRO's heavy draw bar pull (7500 lbs.) and fast travel speeds (up to 22 MPH) make it an efficient switch engine too. You can spot cars *where* and *when* you want them, eliminating the "waiting time" which interrupts production and increases costs.

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They've proven themselves indispensable to industry . . . provide a quick and efficient means of conveying many kinds of raw and manufactured materials both within the plant and outdoors. They're portable, electrically operated, and come in a variety of sizes and types, including cleated belt models. Learn how AMERICAN CONVEYORS can help **increase your plant efficiency**—write for information **TODAY**.

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SAVE TIME— REDUCE LABOR COSTS

for Lifting, Pushing or Pulling with

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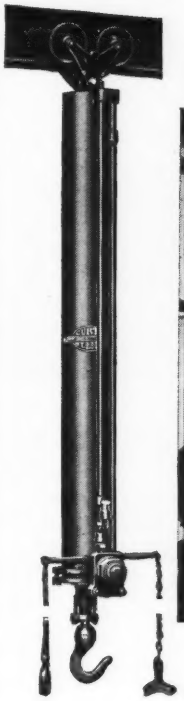

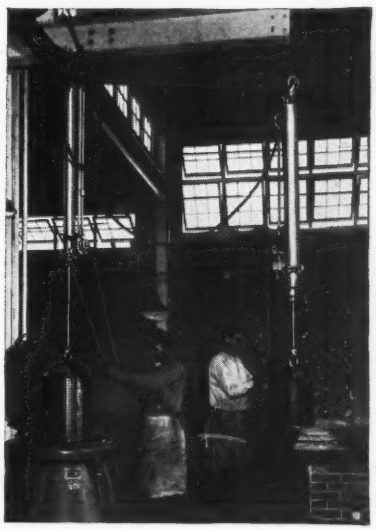

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93 Years of Successful Manufacturing

As its title suggests, the course deals with the handling of materials in industrial plants to save time, conserve space and avoid injury to employes. Offered for the benefit of persons engaged in industrial materials handling operations—factory supervisors, plant and methods engineers, sales engineers and those concerned directly with the manufacture of handling equipment, it is designed to give the student a well-rounded background in basic principles and acquaint him with the types and application of equipment.

Motion pictures and slides will be used to supplement classroom instruction. Authorities in special fields will be invited to speak and inspection trips to industries in the Cleveland area will be arranged during the term.

Classes will be held on Thursday evenings from 6 to 8 with Charles F. Yarham, Sales Engineer for the Ohio Equipment Company, as the instructor. Mr. Yarham has had wide training and experience in materials handling and has had several articles on the subject published.

ARMED with traps that virtually pick lightning from the sky and make it do tricks, engineers of the Westinghouse Electric Corporation have embarked on their annual hunting expedition—in search of more information about thunderbolts. Part of a long-range program aimed at improving the design of equipment that protects homes, factories, and electric power lines each year during the lightning season—June through September—special recording devices are set up on fire towers and tall buildings.

NEWS FROM THE Sales FIELD

SYRACUSE SUPPLY CO., Syracuse, N. Y.: Ronald H. McLernon will represent the Syracuse Supply Co., Materials Handling Division, in southern New York State. He was formerly connected with the New York Central R. R. Engineering Department. After graduating from Syracuse University, McLernon was an instructor in mathematics and mechanical drawing in the Syracuse High Schools. During World War II he saw service as a Navy Lieutenant in the Carribean Area and Pacific Theater.

R. H. McLernon

THE BAKER-RAULANG CO., Cleveland: J. G. Green who is widely known throughout the durable goods field, has been appointed mid-western representative for the Industrial Truck Division. Green Will assume his new duties immediately and plans to make his headquarters at 407 S. Dearborn St., Chicago. His long experience in materials handling should be of great assistance in working with industrial and mining companies who are keenly interested in new developments and the rapidly growing use of palletizing equipment.

PRODUCTION DISPATCH CO., Indianapolis: The following new companies are now represented by Production Dispatch Co.: Sage Equipment Co., conveyor units and hand trucks; Northern Engineering Works, heavy-duty cranes and hoists; McGrath St. Paul Co., pallets, skids and racks; the Spra-Con Co., industrial ovens and overhead trolley conveyors; General Lift Corp., stairway elevators; Service Caster and Truck Div., industrial casters and wheels; Pittsburgh Steel Products Co., welded wire pallets. Exclusive distributors in Indiana for the following companies: Towmotor Corp., fork-lift trucks and tractors; Lift Trucks, Inc., hand-lift trucks; Monroe Auto Equipment Co., drop-bottom skid boxes and stands; M. and E. Manufacturing Co., paint shop equipment; Hopkinsville Woodcraftsmen, hardwood pallets and skids. Technical service, as required by these products, is available to assist with any problem.

READING CHAIN AND BLOCK CORP., Reading, Pa.: Reading Chain and Block Corp. adds the following district representatives: H & H Foundry Supply, Detroit; Ellis Scott Co., Indianapolis; Hall Equipment & Engineering Co., Cincinnati; Russel C. Hedeen Co., San Francisco. These distributors are equipped to render service on all sales and installation requirements for the company's line of chain hoists, electric hoists, traveling cranes and monorail systems.

PATRON TRANSMISSION CO., New York City: The following firms have been added as distributors of Mercury conveyors in their territories: E. C. Buehrer Associates, San Francisco; Foster Equipment Co., Honolulu; Carryall Products Co., Elmira, N. Y.; Glynne Morris Co., Newark, N. J.; Material Handling Co., Flushing, Mich.

AUTOMATIC TRANSPORTATION CO., Chicago: New sales representatives in Charlestown, W. Va., and Louisville, Ky., have been appointed. The new Charleston representatives are the firm of Jefferds and Moore, covering the state of West Virginia, and Pike, Boyd and other eastern Kentucky counties. The firm is headed by Joseph G. Jefferds, Jr., and Junius T. Moore. Wilbur S. Ball has been named Automatic sales representative for the state of Kentucky and the southern portion of Indiana, with headquarters in Louisville. Ball's appointment completes development of the Automatic sales system in Louisville, which was initiated in May with the appointment of T. C. Coleman & Son to cover the Louisville & Nashville Railroad, whose purchasing headquarters are in Louisville.

ALBERT H. CAYNE, New York City: Appointment of Hugh McGovern as Sales Manager covering the sales area of Metropolitan New York, New Jersey, New York State and all of New England. Eighteen sales representatives are now covering this territory. This company has concluded arrangements with the Crescent Truck Company whom they will represent as franchise distributors in the Metropolitan New York area.

★ ★

Local distributors, agencies, representatives—this is a new FLOW department devotedly exclusively to news about YOUR business. Send in items about personnel promotions and changes, new lines or territories. These items will be featured here as often as you people in "the sales field" supply the material. Keep the news about your organization coming to us regularly. Address: FLOW magazine, 1240 Ontorio Street, Cleveland, Ohio.

"Where to buy it" LOCALLY

The advertisers in this section are local in their operations. They not only serve their respective territories as sales agencies, but can also help to solve many of your material handling problems.

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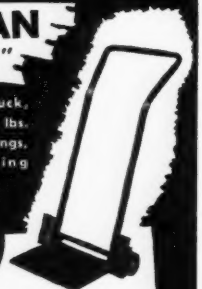

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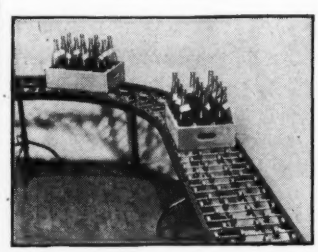

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The William Pike Co.

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SCALES Rented anod Repaired

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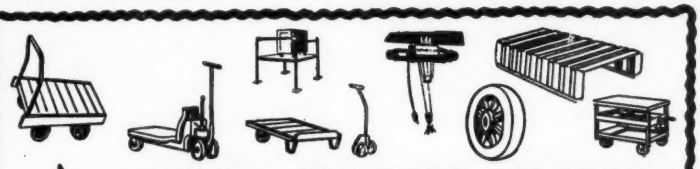
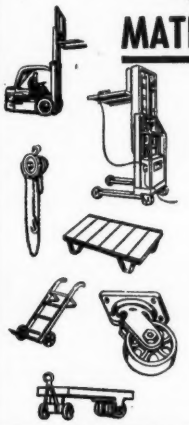


MATERIAL HANDLING EQUIPMENT



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- Belt Conveyors
- Tiering Machines
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- Pallets—Wood & Steel
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- Pneumatic Tube Systems
- Skids—Wood & Steel
- Industrial Tractors & Power-Tiering Machines

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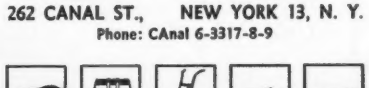

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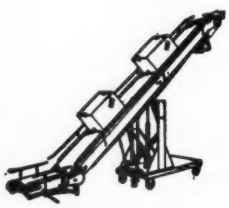

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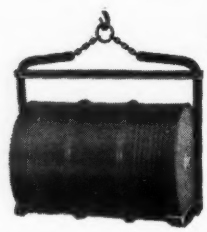
Automatic loading—handles barrels up to 1,000 lbs. with ease. Heavy tubular construction—sliding grip. 22" wide—wt. 85 lbs.



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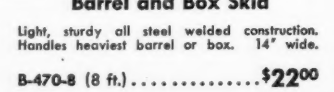

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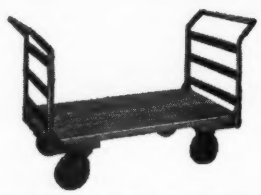

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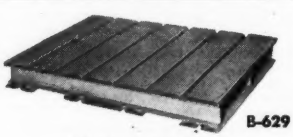

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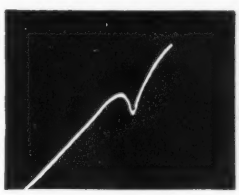
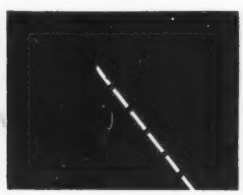
WHY MAKE THE SAME MISTAKE TWICE?

WASTE REPEATED! *First when parts go into storage—again when they come out! Above, a light bulb on the worker's wrist shows the double waste of loading and unloading by hand!*





Unloading is the first mistake . . . *reloading* is the second. And above you see an actual photographic record of the time and effort involved.

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WASTE ELIMINATED! *With Barrett Lift-trucks and Skids, the Skid stays with the load. One move frees the Lift-truck for other work. Again, one move picks up the stored materials—no reloading!*

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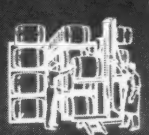
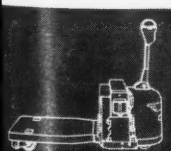


STEEL STORAGE RACKS



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